



Buffing Machine BF 6-3



Instruction Manual

The company reserves the right to change equipment specifications and models without notice. Pictures are representative and may not be part of the standard equipment.

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Foreword

The Buffing Machine BF 6-3 is a compact and space efficient machine which has multiple radius capability for buffing worn-out tyres before retreading. It has a capability to mount 14" to 24.5" bead size tyres on the same hub. It features an automatic (motorized) buffing pass for optimum cut depth. This facilitates improved productivity due to automatic movements. The machine is operator-friendly and is suitable for retreading or recapping using a precure or a mold-cure process.

This machine enables buffing of tyres in an inflated, road running condition. This helps to achieve a perfect, concentric buff profile and buff texture. Tyre manufacturers may want a multiple radius buff surface for 'best' profile for their casing and tread belt. This machine allows for a uniform and consistent shoulder buffing for 'Wing tread' application - a feature that is sought after by many tyre manufacturers.

This machine has an Integrated Under Tread Measuring Device (UMD). There is no need for the operator to check the thickness using pilot skives which creates additional damages that need to be cleaned and filled. UMD has automatic detection and this will prevent from buffing into steel belts.

The machine also has a Circumference Measuring Device to provide the operator with finished buff circumference to aid in efficient tread belt preparation.

The machine is designed and manufactured for accurate and trouble-free performance and can be operated by persons with little training. This instruction manual details installation, commissioning, operation and preventive maintenance procedures.

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01 Description

The Buffing Machine BF 6-3 consists of the following major components:

Main Frame

The main frame is a fabricated steel structure which houses all the main components such as turn table assembly, tyre drive unit, rasp column assembly, pneumatic and electrical controls.

Turn Table Assembly

The turn table assembly is mounted at the bottom of the main frame. This houses the rasp column assembly with a rasp motor. The assembly has a screw rod connected to the motor, which facilitates the movement of the table and in setting the position of the buffing head. There is a template loading cylinder and a template holder mounted on the turn table assembly. During the buffing process the buffing head follows the template profile with help of the follower which is mounted on the rasp head saddle under pneumatic pressure.

Tyre Drive

The tyre drive is mounted on the column of the main frame. The tyre is driven by a 2 hp motor coupled to a gear box on which the expandable rim is fixed for buffing different tyres.

Buffing Head

The buffing head consist of the rasp head assembly. This assembly is driven by a 15 hp motor. The rasp hood outlet is to be connected to a dust extractor for removal of rubber dust. This column is mounted on a Rasp Column Saddle which can change the degree for shoulder buffing. The control panel is located for easy operation. The column is provided with a water spraying system for the rasp blades.

Electrical Panel

The electric panel is located on the column of the main frame. All electrical components are located inside the panel.

Pneumatic Circuit

The pneumatic circuit is located below the electrical panel and is controlled at the operating panel.

Tyre Lift (optional)

A tyre lift is provided for easy loading / unloading of tyres onto the expanding rim.

UMD System

Undertread Measuring Device - 'UMD System' is used to measure the thickness of the rubber above the steel belts. It displays the value of the rubber thickness on the HMI screen.

CM System

Circumference Measurement System - 'CM System', is used to measure the exact circumference of the tyre. It displays the circumference value of the buffed tyre on the HMI Screen.

02 Specifications

Mo	BF 6-3
	MA11 63 - X*
Tyre Range	6.50 - 14 to 12.00 - 24.5
Air Pressure Requirement (kPa / kg/cm ²)	800 / 8
Dimensions (L x W x H) (mm)	1750 x 1850 x 2440
X* in Cat. No. denotes power supply specifications (V / Hz / ph)	R - 220 / 60 / 3 O - 380 / 50 / 3 S - 380 / 60 / 3 P - 415 / 50 / 3 U - 440 / 60 / 3
Weight (kg)	~1360
Installation	Free standing

03 Assembly and Commissioning Tools

Accessories

Standard	Installation kit
	Cyclone filter
	Installation kit for Cyclone filter
Optional	Tyre lift

Tools

Spanners	
Double end 6 - 36	1 Set each
Ring end 8 - 19	1 Set each
Box Bit 16,17,18,19	1 No.
Adjustable spanner - 1/2"	1 No.
Circlip pliers - 6" (internal and external)	1 No.
Cutting pliers - 10"	1 No.
Screw driver set	1 No.
Allen keys (mm) and 7/32", 3/16"	1 Set
Line tester	1 No.
Nylon hammer	1 No.
Insulation tape	1 Roll
Teflon tape	1 Roll
WD 40 rust removing spray	1 No.
Pipe wrench 18"	1 No.

Materials

Lubricating oil (SAE 20)	¼ L
Multi-purpose grease	¼ kg
Electric cable 4 core, 6 sq.mm	Length as per installed position

04 Installation and Commissioning

Positioning

- The machine can be positioned as a part of the in-house monorail system or as a free standing machine with sufficient space around it.
- It should be placed in a well illuminated space with a good exhaust system.
- The machine does not need a foundation and can be fixed to the floor by using expanding bolts ($\frac{1}{2}$ " or 12 mm) on a level surface. Ensure that it is levelled with the help of a spirit level.
- Position the dust extractor or cyclone filter with a suitable exhaust for the outlet.

Connection

- Connect the cyclone filter through the duct hose to the rasp hood outlet.
- Connect the machine (dust extractor) through the panel board or with a Direct On Line Motor Starter (DOL starter).
- Connect a pneumatic line from the nearest point to the machine.
- Connect a 3 phase 380 - 440 V by using a 4 core 6 sq.mm copper cable.

Pressure Setting

Ensure the air pressure in the regulator:

- (R1) Main inlet pressure / Hub is 8 kg/cm²
- (R2) Tyre pressure is 1.6 kg/cm²
- (R3) Template pressure is 5 kg/cm²
- (R4) Safety door pressure is 2.5 kg/cm²
- (R5) Water spray pressure is 2 kg/cm²
- (R6) UDM pressure is 2.4 kg/cm²

Expanding Rim Fixing

- Fix the required rim to the hub of the machine. The stem with / without lock should slide into the groove of the segments and should be locked.
- Connect the hose of the rim into the quick coupler on the hub.

05 Pre-Operation Checks

- Remove the shipment clamps that are provided below the rasp column, which are painted red / orange.
- Ensure that the turn table and rasp column break shoe is locked and that the manual lock is in locked position.
- Do not expand the hub before loading the rim.
- Check for free movement of the tyre lift.
- Check for free movement of the expanding hub.
- Check the tyre drive motor for forward and reverse rotation.
- Check the direction of rotation of the rasp motor.
- Check the joystick controls for smooth operation only after you have assured the correct rotation of motors.
- Check that the 6 bolts on the shaft connecting the hub are secure.
- Ensure that the main inlet pressure is 8 kg/cm².
- Check the incoming power line for correct voltage.
- Ensure that the lock nut on the rasp spindle shaft is tightened securely.
- Check if all sensors are properly functioning.
- Ensure that the filter bowl is free of water.

06 Operation

1. Load tyre on the expanding rim with the help of a tyre lift or transfer hook.
2. Choose and fix a template for the required radius.
3. Set the depth of cut by changing the value of CUT DEPTH icon on the home screen. It may vary from 0 to 2 mm.
4. Set the first depth value by pressing the SETTINGS icon. This value should be set once in a shift or if operator changes and only for the first tyre.
 - a) Choose MODE to MANUAL in operating panel.
 - b) Turn ON the HUB INFLATE switch.
 - c) Turn ON the TYRE INFLATE switch.
 - d) After tyre is fully inflated, load the template by turning ON the TEMPLATE switch.
 - e) Ensure that the 'radius movement' value on the screen is zero. If not, set it to zero by controlling the joystick on the control panel.
 - f) Ensure that the 'depth movement' value on the screen is zero. If not, set it to zero by controlling the joystick on the control panel.
 - g) Switch ON the TYRE DRIVE.
 - h) Move the rasp column towards the casing by controlling the joystick. When the roller touches the casing and moves up, the Reed switch light will glow on the door cylinder. Stop the movement as soon as the light starts glowing and note the value of depth movement (eg., 125.5 mm).
 - i) Move the rasp column further until the blade touches the casing. Note: The depth should be a minor cut, with a depth, less than or equal to 1 mm.
 - j) Note the value (eg., 165.5 mm).
 - k) Now subtract initial value from final value (eg., $165.5 - 125.5 = 40$ mm).
 - l) Add 1 mm to the above result (eg., $40+1 = 41$ mm).
 - m) Enter this value in first depth.

5. For radial tyres, switch ON the 'steel depth' value and enter the required value (eg., if 4 mm is set as steel depth value, the machine will buff up to 4 mm and stop automatically)
6. For bias tyres, switch OFF the 'steel depth' value and set the 'radius movement' value (eg., if the number of passes is set to 5, the machine will perform 5 passes for fixed depth of cut, as per initial setting)
7. Switch ON / OFF the water spray icon on the home screen as required. It is recommended to keep it ON for prolonged blade life.
8. Choose the mode in operating panel (MANUAL / AUTO) before starting the cycle.
9. If AUTO mode is set, press CYCLE START button on the operating panel of the machine in order to initiate the cycle.
10. After starting the cycle, Crown 'R1' buffing cycle is automatically initiates and stops, based on the feedback from the 'steel depth sensor' or 'number of passes' set.
11. At the end of cycle, the required 'circumference' and 'steel depth value' will be displayed on the HMI screen.
12. For 'R2' Shoulder radius buffing, change the template, change the MODE to MANUAL and use the left or right joy stick to position the rasp column near the shoulder area.
13. After positioning, buff the tyre to the desired depth by manually tilting the rasp column using the handle and repeat the same process on the other side.

07 Calibrations

Steel Depth Calibration

1. Choose MANUAL mode in the operating panel.
2. Load a buffed casing for which the steel depth value is known (pilot skive and measure manually).
3. Inflate the casing.
4. Go to 'Calibration' screen on the HMI panel.
5. Choose 'Steel Depth Calibration'.
6. Press DOWN arrow on the touch screen. Steel depth sensor assembly will load on the casing.
7. Manually rotate the casing and position the steel depth sensor and roller, such that both touch the steel wire.
8. Press ZERO on the screen. Wait for ZERO calibration to complete.
9. Rotate the casing to another known steel depth value area and enter the known value on the screen. Press 'Calibrate'.
10. Wait for the 'Calibration Successful' message. Now the calibration is complete.

Circumference Calibration

1. Choose MANUAL mode in the operating panel.
2. Fix the minimum stopper on the expanding hub and measure the distance from the hub centre to the top of the stopper (minimum stopper is supplied along with the machine).
3. Go to 'Calibration' screen on the HMI panel.
4. Choose 'Circumference Calibration'.
5. Press DOWN arrow on the touch screen. Circumference sensor assembly will load on the minimum stopper.
6. Enter the measured value in the 'Place Zero Level Sample Press' and press ZERO. Wait for ZERO calibration to complete.
7. After completion, press UP arrow.
8. Fix the maximum stopper on the expanding hub and measure the distance from the hub centre to the top of the stopper.
9. Press DOWN arrow on the touch screen. Circumference sensor assembly will load on the maximum stopper.
10. Enter the measured value in the 'Place Calibration Sample Value'. Press 'Calibrate'.
11. Wait for the 'Calibration Successful' message. Now the calibration is complete.

Hub Pressure Calibration

1. Choose MANUAL mode in the operating panel.
2. Go to the 'Calibration' screen on the HMI panel.
3. Choose 'Hub Pressure Calibration'.
4. Ensure 'Hub Release' switch is ON.
5. Press ZERO on the screen. Wait for ZERO calibration to complete.
6. Load the casing on the expanding rim. Switch ON 'Expand' switch.
7. Set the air pressure in the main regulator as 8 kg/cm². The same value should be seen on the individual pressure gauge on the vertical post.
8. Enter the 'Set Hub Pressure Value' as 8 kg/cm².
9. Press 'Span Calibration'.
10. Wait for the 'Calibration Successful' message. Now the calibration is complete.

Tyre Pressure Calibration

1. Choose MANUAL mode in the operating panel.
2. Go to the 'Calibration' screen on the HMI panel.
3. Choose 'Tyre Pressure Calibration'.
4. Ensure that 'Deflate' switch is ON.
5. Press ZERO on the screen. Wait for ZERO calibration to complete.
6. Adjust the Tyre Pressure regulator and set the Tyre Pressure from 1.5 - 2 kg/cm². Load the casing on the expanding rim. Switch ON 'Expand' switch and 'Inflate' switch. The same value should be seen on the individual pressure gauge on the vertical post.
7. Enter the 'Set Tyre Pressure Value' as 1.5 - 2 kg/cm².
8. Press 'Span Calibration'.
9. Wait for the 'Calibration Successful' message. Now the calibration is complete.

08 Do's and Don'ts

Do's

- All moving parts should be cleaned and lubricated periodically.
- The air filter should be drained at regular intervals.
- Ensure that all gauges indicate correct reading.
- The silencer should be cleaned regularly.
- Ensure that the locking arrangement on the rims are always good.
- Ensure correct pressure for the hub and tyre are maintained as recommended.
- Ensure that the lock nut on the rasp spindle is fastened every time.
- Flip the head assembly at its half life.
- Clean the dust that has accumulated on the wiper seal of guide shafts.

Don'ts

- Never inflate the hub when a rim is not mounted.
- Do not use blunt blades.
- Do not buff tyres without the bristles on the rasp cover or if the dust extractor hose is disconnected.
- Do not buff the tyre by using a rasp column without locking the break switch or manual knob.
- Do not do maintenance work on the machine without switching OFF mains.
- Do not step over the sensors which are fixed on the main frame while doing maintenance work.
- Do not run the machine without oil in the gear box.
- Do not release the air by pulling the safety valve of the expandable rim to deflate the tyre.
- Do not release the hub suddenly. This will cause the air inside the tyre to escape through the bead with a loud bang, dislocating the rim.

09 Troubleshooting

Symptoms / Problems	Possible Causes	Remedies
Machine does not run when switched on	<ol style="list-style-type: none"> Incoming supply failure Improper panel board connection Failure of fuse Emergency switch in locked position 	<ol style="list-style-type: none"> Check incoming supply Check and correct wiring as per circuit diagram Check and replace fuse Release emergency switch
Motor runs on continuous pressing of switch and stops when is released	<ol style="list-style-type: none"> Contactors connection loose Push button contact lock connection loose Push button contact lock failure 	<ol style="list-style-type: none"> Clean contactor terminals and tighten connections Check and rectify Replace contact block
Motor stops while running or rasp motors gets over heated	<ol style="list-style-type: none"> Motor overload 'V' belt too tight Bearing failure Blades blunt Coil of motor is weak Wrong amperage setting Radius movement (traverse movement) is too fast 	<ol style="list-style-type: none"> Ensure that the depth of cut is not more than 2 mm Correct belt tension Change bearing if required Replace blades Check coil with help of merger and rewind if needed Reset relay amperage correctly and increase if needed within the allowable limit Ensure that radius movement from left to right takes place in 40 seconds by adjusting the DC drive in the control panel
Motor rasp speed decrease while buffing	<ol style="list-style-type: none"> 'V' belt loose Excess depth of cut Low voltage 	<ol style="list-style-type: none"> Check belt tension - correct or replace Reduce depth of cut (max. 2 mm) Check and correct
'V' belt stretches frequently	<ol style="list-style-type: none"> Belt drive misalignment Wrong belts Pulleys damaged 	<ol style="list-style-type: none"> Check and correct Use only B47 belts Replace pulleys

Symptoms / Problems	Possible Causes	Remedies
Motors humming noise and do not rotate	<ol style="list-style-type: none"> 1. Failure in any one phase supply at motor end 2. Voltage drop 	<ol style="list-style-type: none"> 1. Check 3 phase of supply by using test lamp 2. Check voltage
Machine vibrates while running	<ol style="list-style-type: none"> 1. Machine frame base not levelled on the ground 2. Unbalanced rasp head 3. Uneven tyre surface and heavy lugged tyre 4. Excessive depth of cut 	<ol style="list-style-type: none"> 1. Check base with spirit level and correct accordingly 2. Run rasp head alone and check 3. Check vibration, dynamically balance the head if necessary 4. Do initial buffing with lesser depth of cut till surface evens out. Reduce depth of cut to 1 mm or 2 mm
Noise in tyre drive assembly	<ol style="list-style-type: none"> 1. No oil in the gear box 2. Gear box failure 3. Drive bearing failure 	<ol style="list-style-type: none"> 1. Fill up with suitable lubricating oil up to level 2. Dismantle gear box and check gears for any wear. Replace worn out gears. 3. Replace bearing
Rasp head assembly blades are very loose and chipping off	<ol style="list-style-type: none"> 1. Improper setting of aluminium spacer in rasp head 2. Tighten the lock out 	<ol style="list-style-type: none"> 1. Check and correct 2. Check and correct
Rubber dust does not get extracted fully	<ol style="list-style-type: none"> 1. Accumulation of rubber dust in bin, flexible hose and rasp head column 2. Blower motor running in reverse direction 3. Leaky joint and bin sealing 	<ol style="list-style-type: none"> 1. Empty bins, clean hose etc. 2. Check and correct 3. Check and correct
Rubber dust comes out of cyclone filter's outlet pipe	<ol style="list-style-type: none"> 1. Over flowing bin 	<ol style="list-style-type: none"> 1. Empty the bin

Symptoms / Problems	Possible Causes	Remedies
<p>fe eccentricall shoul the other</p>	<p>t Main shaft little to front or to Inner s</p>	<p>position 3. Adjust the spacer for correct cantering 4. Check and correct 5. Check and correct</p>
<p>Tyres get buffed eccentrically (excessive buffing on one point, less buffing on diametrically opposite point)</p>	<p>1. Radial run out in rim</p>	<p>1. Check and replace stems</p>
<p>Inflation pressure is not fully attained in tyre</p>	<p>1. Air leakage in joints 2. Restricted air flow through air hose line 3. Air regulator not working 4. Bead leak in tyre</p>	<p>1. Check and rectify joints 2. Check hose for any bending or twisting causing smaller air flow 3. Check regulated air pressure by fitting another gauge in line if gauge not reading, dismantle regulator and rectify or replace 4. Reject the tyre</p>
<p>Air leaks between bead and expandable rim flap</p>	<p>1. Expandable hub pressure low pressure 2. Wear in stems</p>	<p>1. Check air pressure in hub and correct 2. Check and replace worm out stems</p>
<p>When main airline pressure is opened, air starts leaking continuously</p>	<p>1. Insufficient incoming pressure 2. Pilot valve failure</p>	<p>1. Check and correct 2. Check and correct</p>

Symptoms / Problems	Possible Causes	Remedies
in the t	Inco	
not sto	<ul style="list-style-type: none"> 1. rong steel 2. Value is within range but steel wire lifts means sensor position is changed 3. Sensor is damaged 	<ul style="list-style-type: none"> 1. Check and set the correct value (range: 0.5 mm - 4 mm) 2. Set the correct position and calibrate the sensor 3. Check and replace if necessary
Circumference value is not displayed, or wrong value is displayed	<ul style="list-style-type: none"> 1. The displacement encoder setup is disturbed or damaged 	<ul style="list-style-type: none"> 1. Check and fix the correct position and calibrate the circumference value Replace the displacement encoder if necessary
Improper or no radius movement (traverse movement)	<ul style="list-style-type: none"> 1. The position of proximity sensor shifts 2. Sensor damaged by loading on template 3. Sensor failure 4. Rotary encoder fixed to DC motor is damaged 5. Flexible coupling connecting encoder and DC motor is damaged 	<ul style="list-style-type: none"> 1. Set the appropriate position and lock the sensor 2. Adjust the sensor height and set it in such a manner that the gap between the sensor and template is 3 mm 3. Check and replace the sensor 4. Check and replace the encoder 5. Check and replace the coupling


Symptoms / Problems	Possible Causes	Remedies
Desired cut depth is not achieved	<ol style="list-style-type: none"> 1. Failure or damage of rotary encoder fixed in the drive 2. Rubber dust accumulated on the screw rod or guide shaft 3. Flexible coupling connecting encoder and drive is damaged 4. Voltage drop 	<ol style="list-style-type: none"> 1. Check and replace the encoder 2. Remove the protection cover and clean the rubber dust 3. Check and replace the coupling 4. Check the voltage and correct
Rasp head door not opening or auto cycle not initiated after door opening	<ol style="list-style-type: none"> 1. Improper position of reed switch in the door cylinder 2. Failure of reed switch 3. Excess air pressure in the door cylinder 	<ol style="list-style-type: none"> 1. Check and correct the position 2. Check and replace it 3. Set the appropriate pressure (1.5 kg/cm²)
Home position not attained after buffing	<ol style="list-style-type: none"> 1. Failure of proximity sensors fixed on turn table and main frame for min. and max. movement 2. Electrical cable for proximity sensor is damaged 	<ol style="list-style-type: none"> 1. Check and replace it 2. Check and correct it

10 Preventive Maintenance

Name of the Post	Buffer
Name of the Equipment	Buffing Machine
Model No.	BF 6-3

S. No.	Activity	Frequency	Acceptance Criteria
1	Clean the machine	Daily	Dust free
2	Drain the water from the air filter	Daily	No water in the filter unit
3	Check tyre inflation pressure is 1.4 kg/cm ²	Daily	Pressure in between - 1.5 ± 0.3 kg/cm ²
4	Check expandable hub pressure is 8 kg/cm ²	Daily	Pressure in between - 8 ± 0.5 kg/cm ²
5	Check the condition of buffing blades and reverse or replace if necessary	Daily	No wear and tear in blade teeth and buffed texture is RMA-3/4
6	Clean the cyclone filter bin after buffing every 5 or 7 tyres	Daily	No rubber dust inside the cyclone filter
7	Check the stem with locks / without locks replace if necessary	Daily	Expandable rim should be locked properly
8	Lubricate rubber flap in expandable rim with Silicon Spray	Daily	Tyre fitting should be air tight
9	Check the condition of ceiling wire for tyre lift arrangement	Daily	No damage
10	Lubricate the sliding bar of tyre lifter with graphite grease	Weekly	Properly lubricated and smooth movement of tyre lifter
11	Lubricate the Turn Table Screw rod assembly with graphite grease	Weekly	Properly lubricated and smooth movement of turn table
12	Check the expandable hub mounting bolts and tighten if necessary	Weekly	Bolt should be tightened properly
13	Check the oil level in gear box	Weekly	Top up oil up to visible level
14	Check the rasp drive belt tension to be 10-15 mm or replace with B-47 V-Belt if necessary	Weekly	No wear tear in belt
15	Clean and service the expandable hub assembly	Monthly	All parts in working condition and no wear and tear in assembly part
16	Check the expandable hub safety valve to operate at 2.2 kg/cm ²	Monthly	Safety valve should be open if pressure is more than 2.2 kg/cm ²
17	Flush the gear box oil and replenish with SAE - 90 Oil	Every 250 tyres	Replace the oil

11 Electrical Drawings

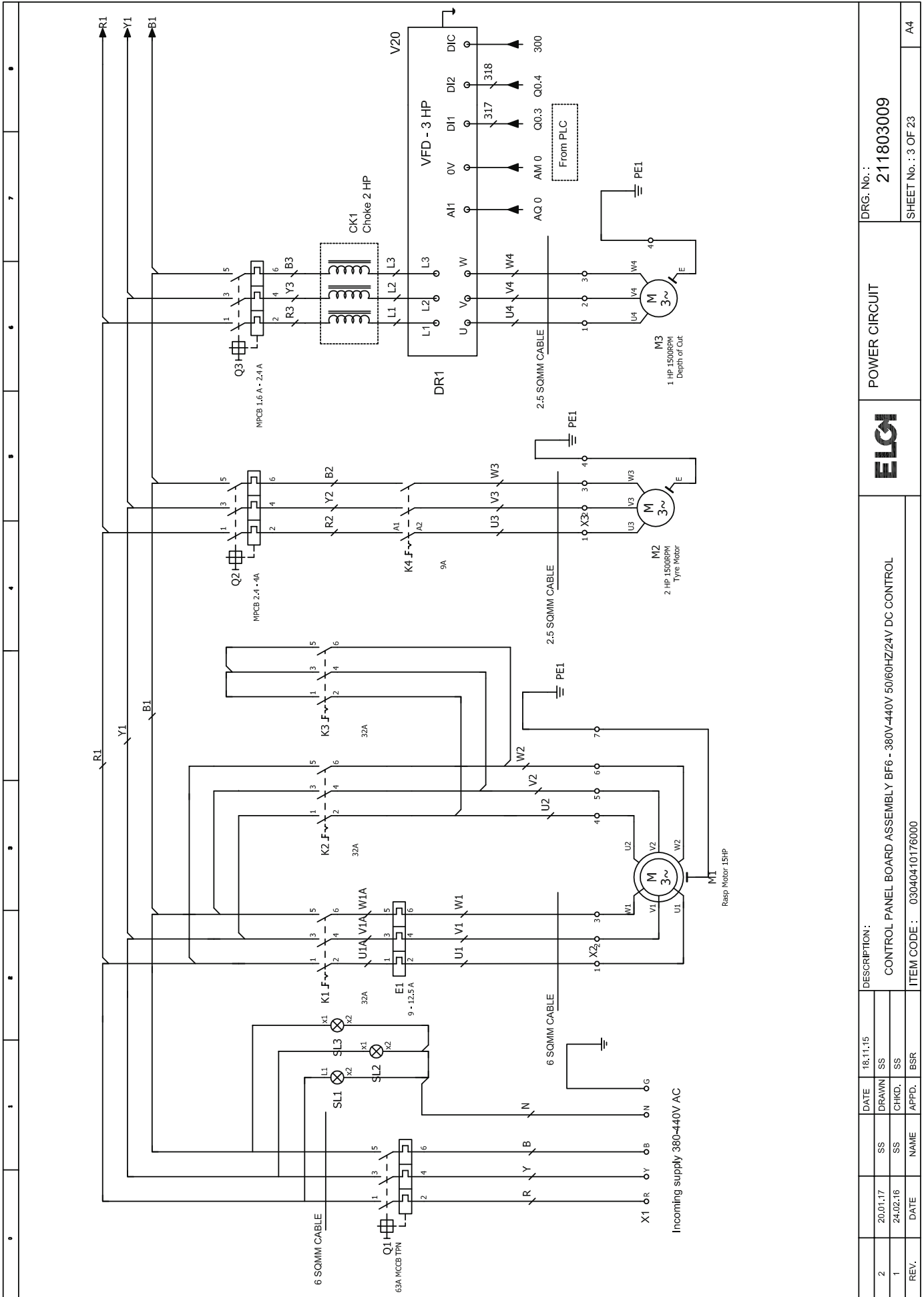
		Elgi Rubber Company Limited 641005 Coimbatore Phone. 9894510000	
TEMPLATE BUFFING MACHINE - 380-440 V / 50-60 HZ - 24V DC Control 211803009			
Project description Drawing number		03040410176000 CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL 03040410177000 CONTROL SWITCH BOARD ASSEMBLY BF6/24V DC CONTROL	
Manufacturer (company)		08-10-2017 18-11-2017	
Path		Number of pages 23	
Item code & Description		08-10-2017 18-11-2017	
Created on		08-10-2017 18-11-2017	
Edit: date		08-10-2017 18-11-2017	
Description:		CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL	
ITEM CODE: 03040410176000		DRG. No. : 211803009	
TITLE PAGE		SHEET No. : 1 OF 23	
A4		A4	

TECHNICAL INFORMATION

<p>ALL DIEMENSIONS ARE IN MM DOORS ARE ONLY AT FRONT SIDE CONTROL PANEL CONSTRUCTION</p>		<p>OPERATING BOX CONSTRUCTION</p>	
PANEL MAKE	RITTAL	PANEL MAKE	RITTAL
PART NO	AE 1090500	PART NO	EB 1556500
HEIGHT	1000	HEIGHT	400
WIDTH	600	WIDTH	300
DEPTH	250	DEPTH	120
DOOR	SINGLE DOOR	DOOR	SINGLE DOOR
<p>DISPLAY BOX (HMI) CONSTRUCTION</p>		<p>INSIDE SIDE SURFACE PAINT SHADE : PEBBEL GRAY</p>	
PANEL MAKE	RITTAL	INCOMING SUPPLY	415V AC
PART NO	AE 1035500	CONTROL VOLTAGE	24V DC
HEIGHT	300	CONTROL CABLES	1 SQMM BLUE
WIDTH	200	<p>EARTHING TO BE PROVIDED AS PER STANDARD SHROUDING TO BE PROVIDED AS PER STANDARD</p>	
DEPTH	155		
DOOR	SINGLE DOOR		

2	20.01.17	SS	18.11.15	DATE	DESCRIPTION :	DRG. No. :
1	24.02.16	SS	SS	DRAWN	CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL	211803009
REV.	DATE	NAME	APPD.	BSR	ITEM CODE : 03040410176000	SHEET No. : 2 OF 23
						A4





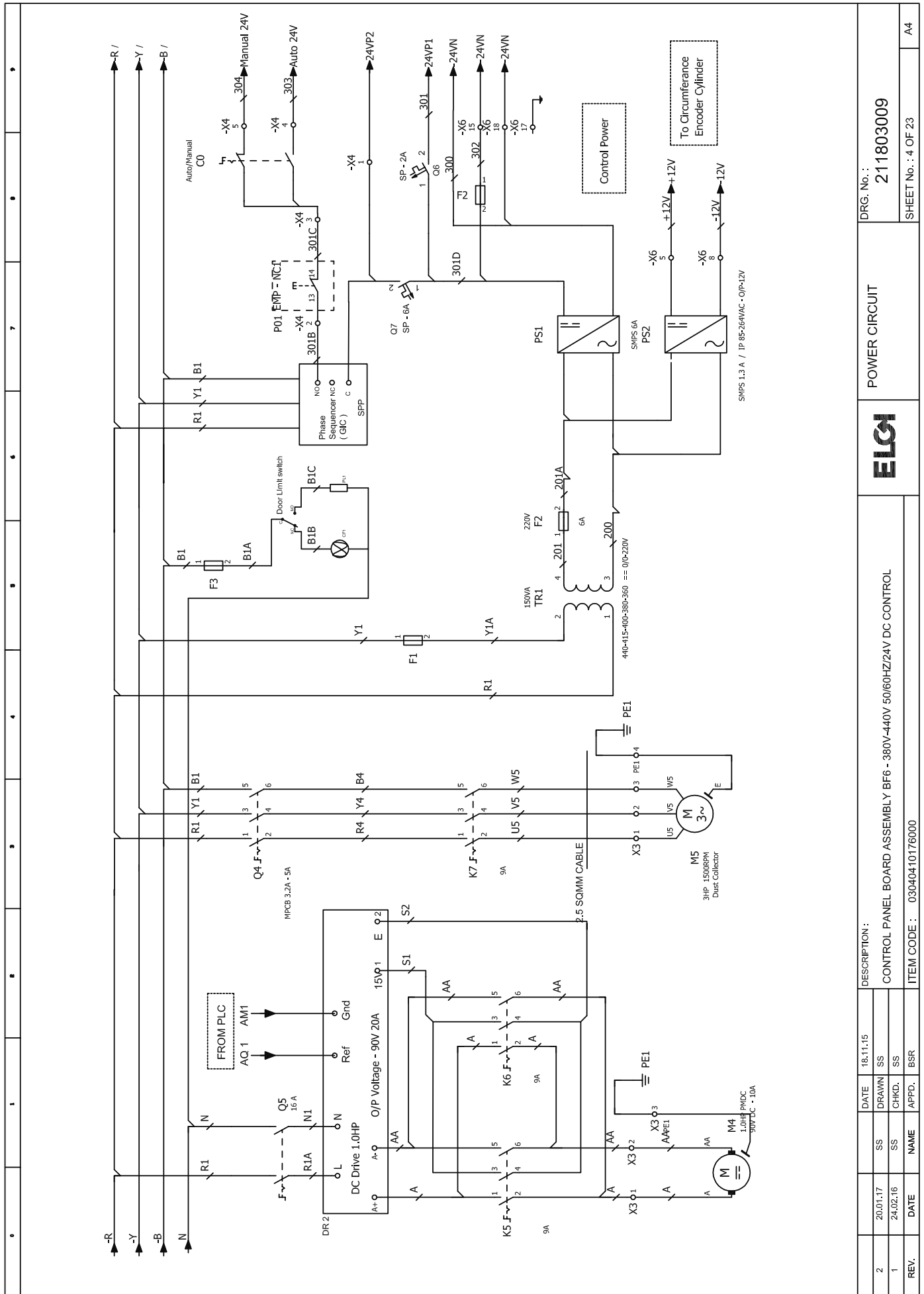
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211803009
SHEET No. : 3 OF 23

POWER CIRCUIT

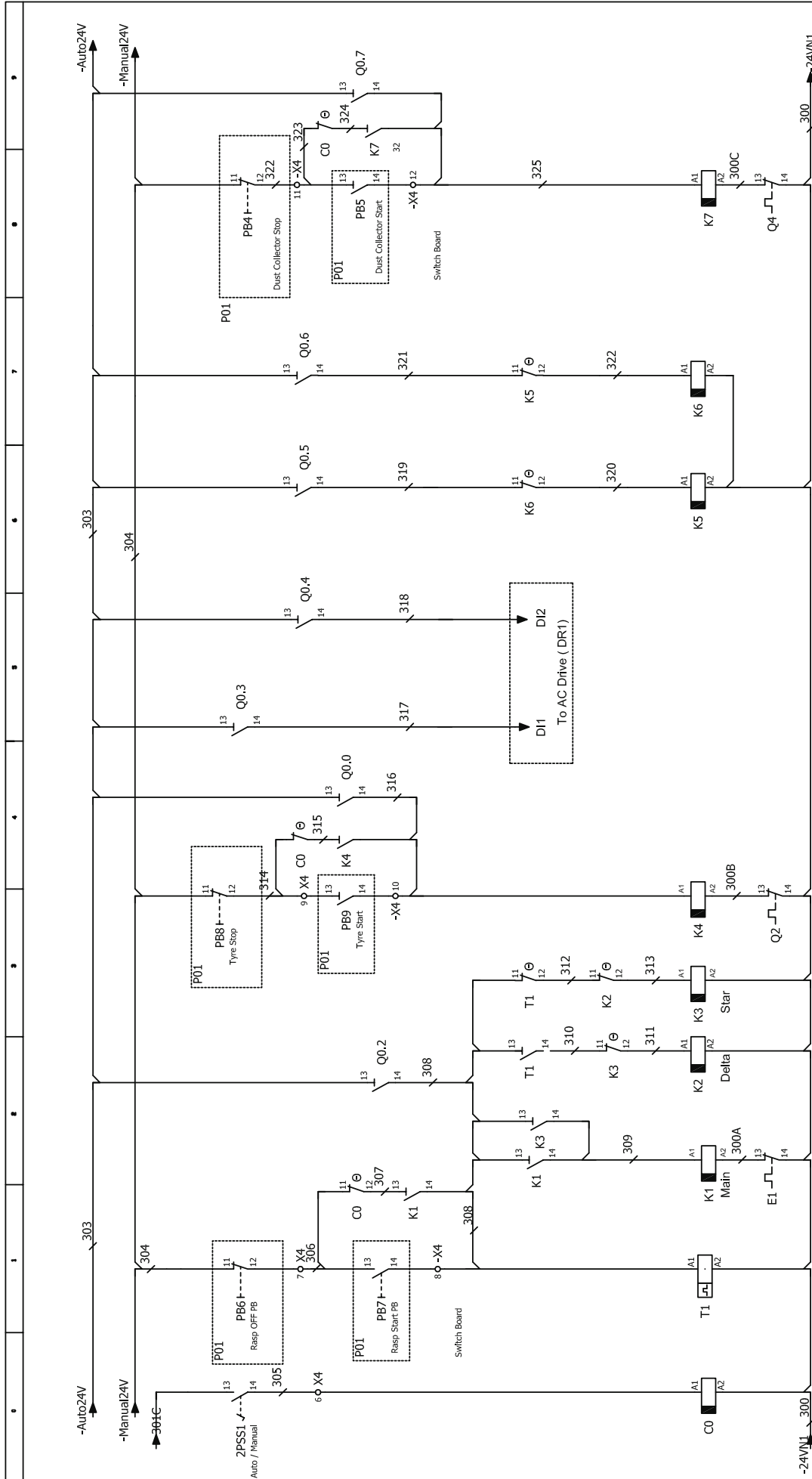


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ITEM CODE : 03040410176000

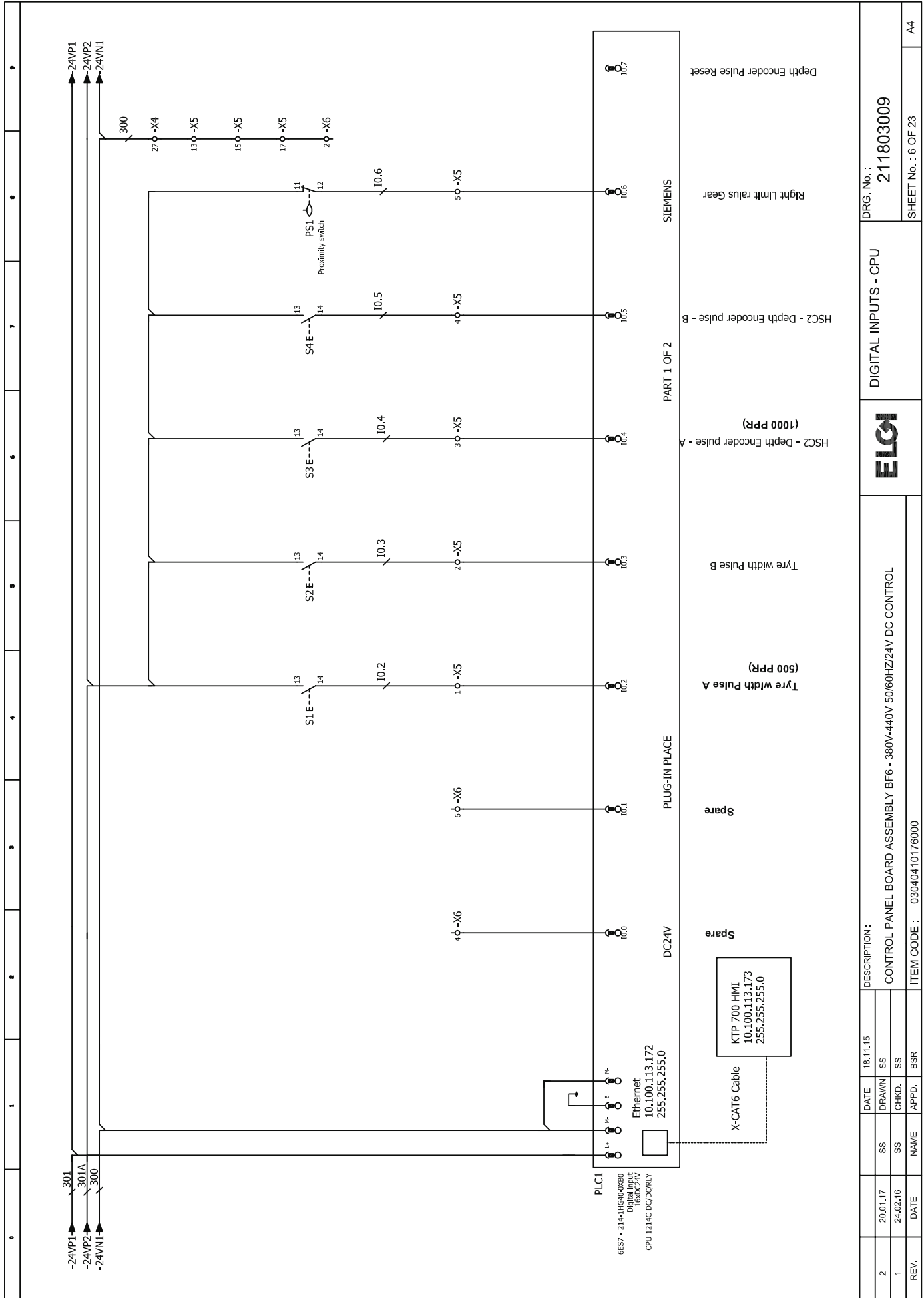
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1	24.02.16	SS	SS	SS



REV.		DATE	NAME	APPD.	BSR	DESCRIPTION :	
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						SHEET No. : 4 OF 23	
						A4	



DATE		18.11.15	DESCRIPTION:	
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1	24.02.16	SS	CHKD. SS	
REV.	DATE	NAME	APPD.	BSR
				ITEM CODE : 03040410176000
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DRG. No. : 211803009
SHEET No. : 6 OF 23

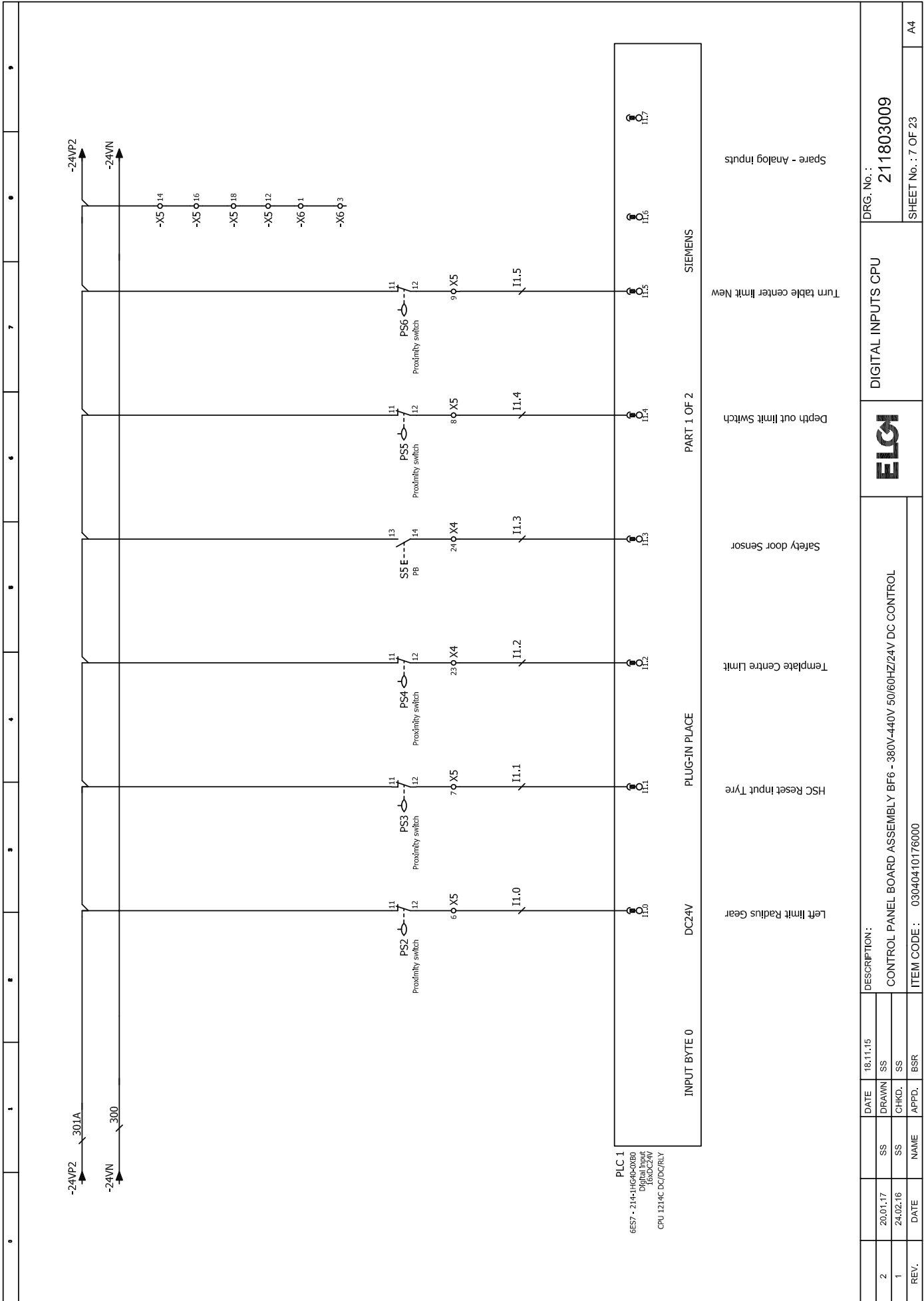
DIGITAL INPUTS - CPU



HSC2 - Depth Encoder pulse - A (500 PPR)
Tyre width Pulse A
HSC2 - Depth Encoder pulse - B (1000 PPR)
Tyre width Pulse B
Right Limit radius Gear
Depth Encoder Pulse Reset

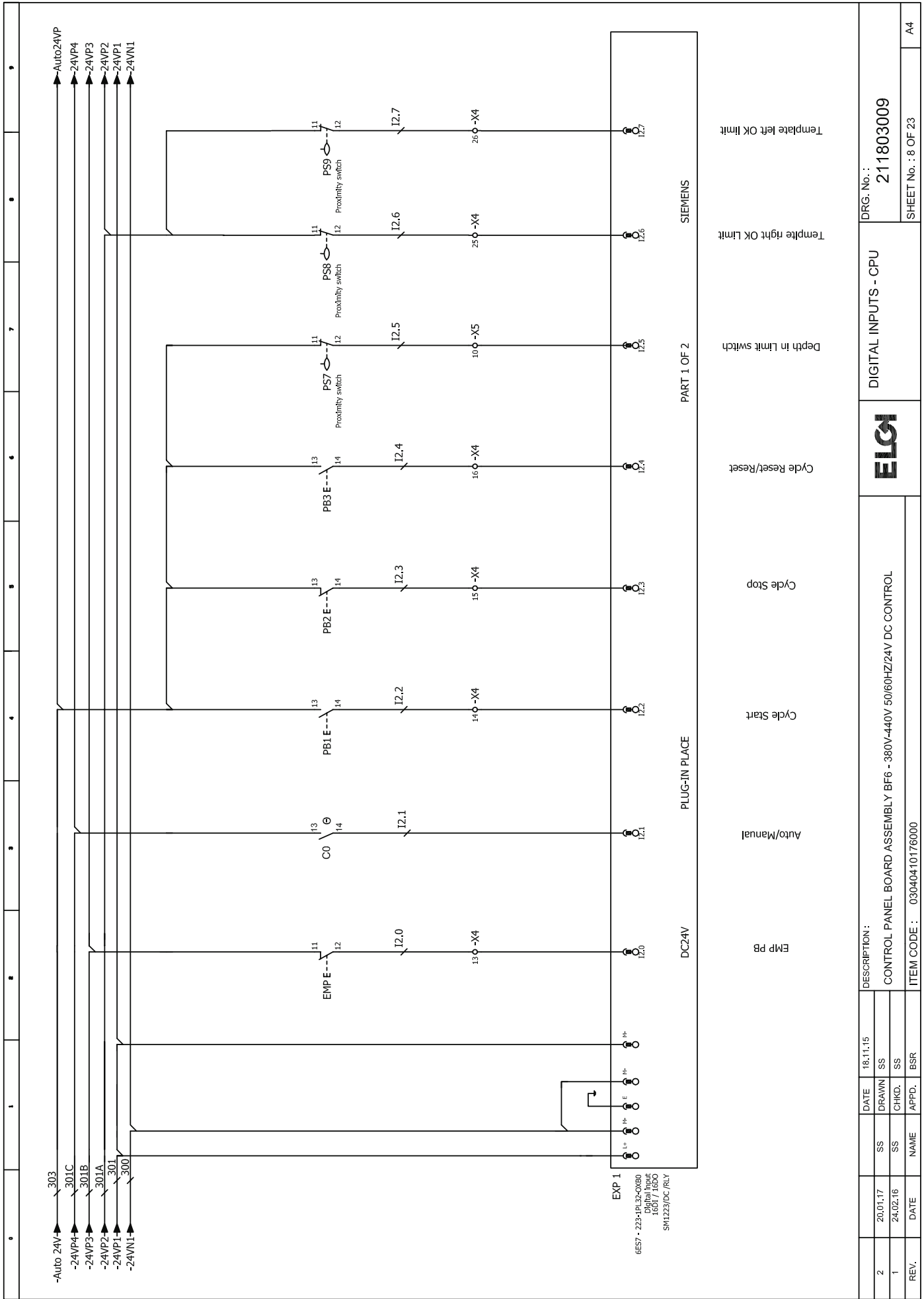
REV.	DATE	NAME	APPD.	BSR
2	20.01.17	SS	SS	SS
1	24.02.16	SS	CHKD.	SS

DESCRIPTION: CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL
ITEM CODE : 03040410176000

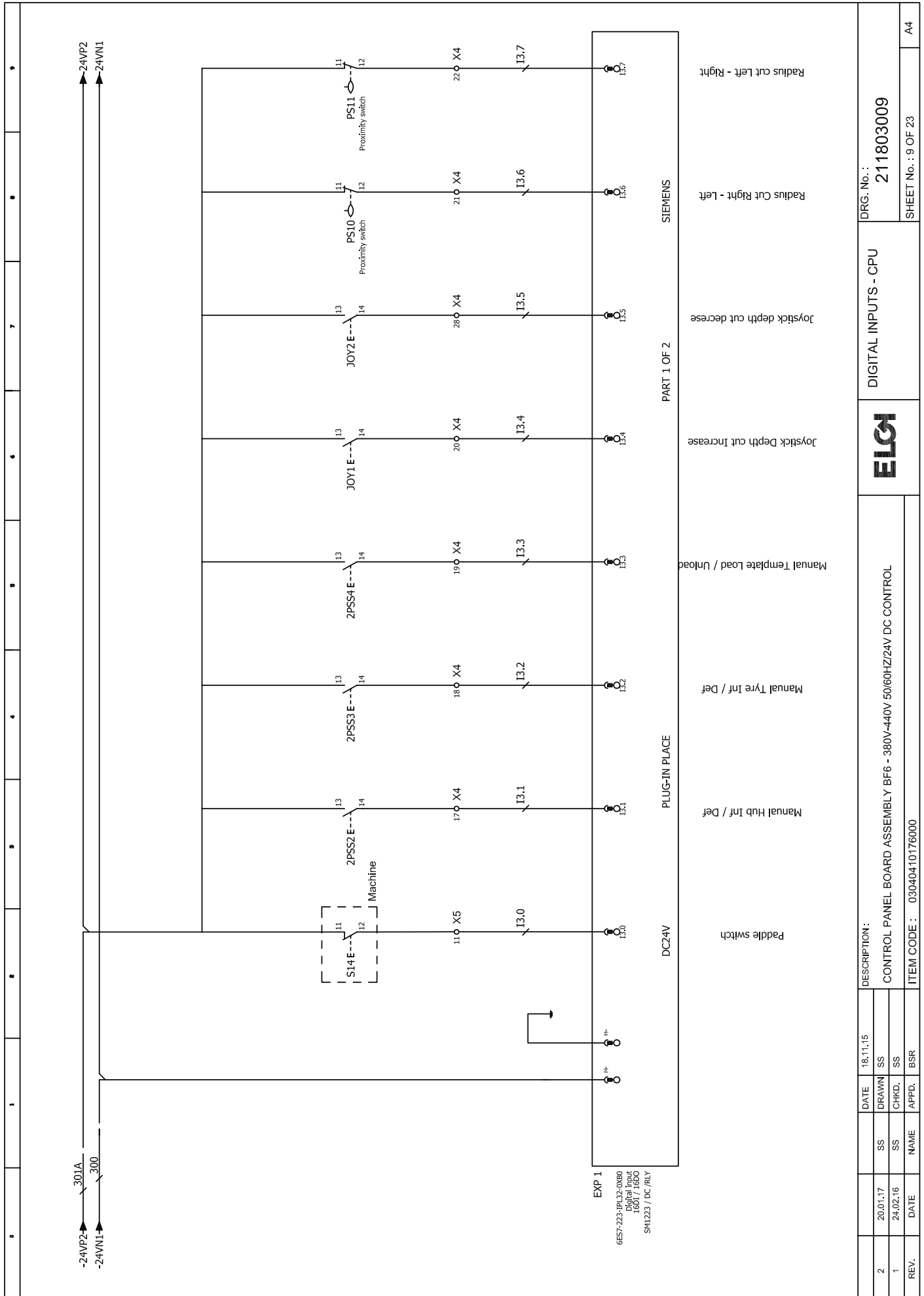


REV.	DATE	NAME	APPD.	BSR	DESCRIPTION:	ITEM CODE :
2	20.01.17	SS	SS	SS	CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL	
1	24.02.16	SS	SS	SS		
						ITEM CODE : 03040410176000

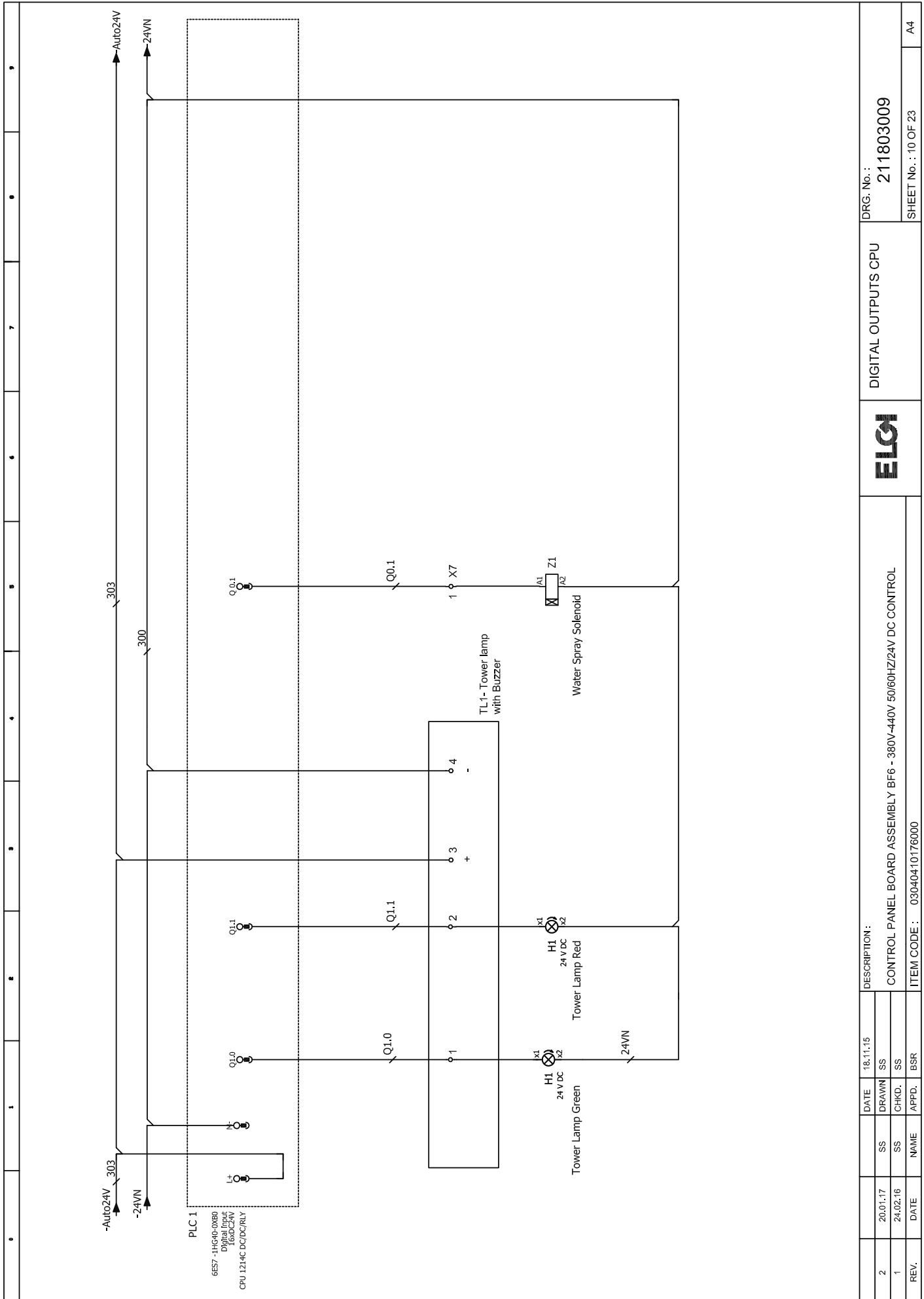
DRG. No. :	211803009
SHEET No. : 7 OF 23	A4

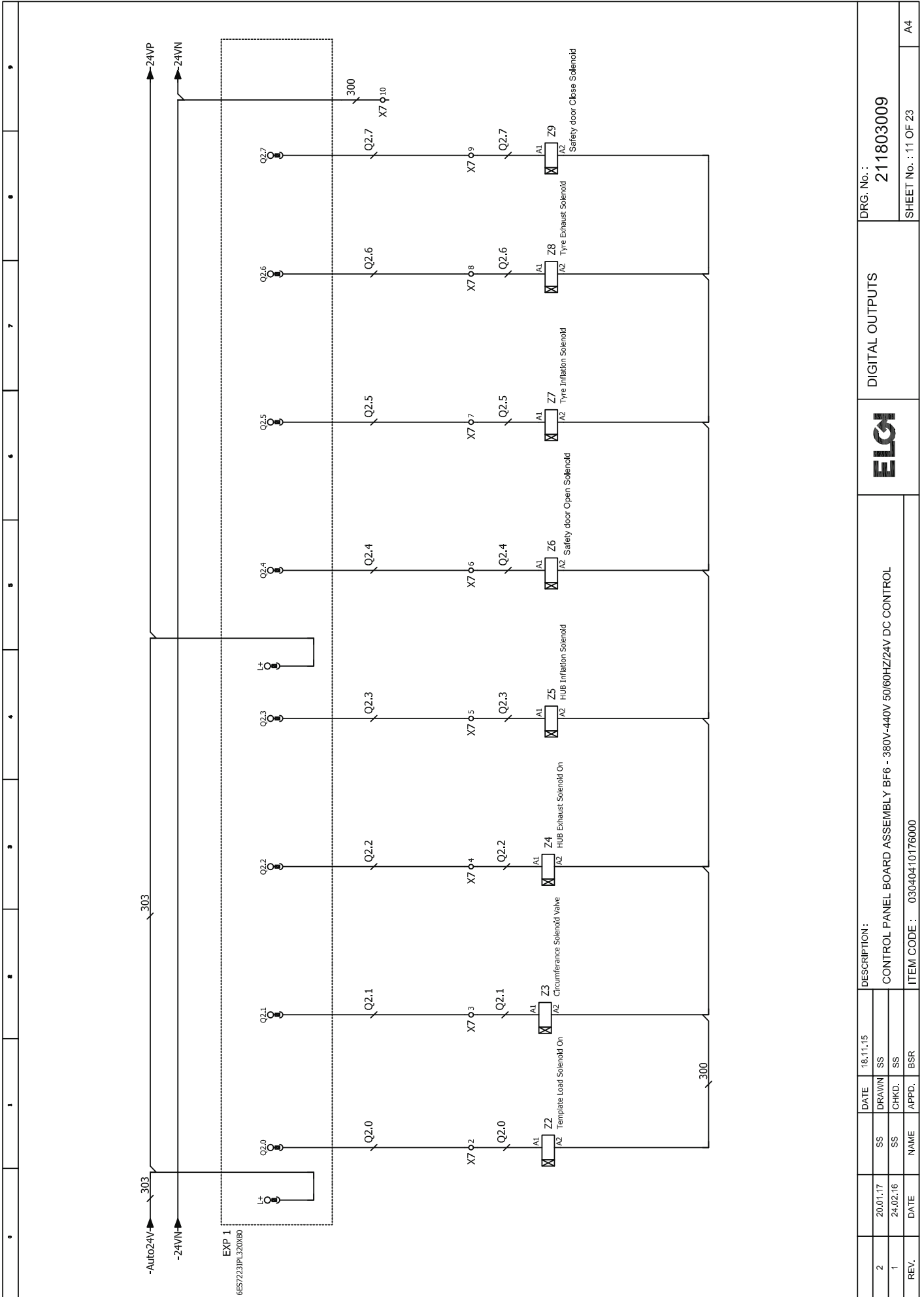


DATE		18.11.15	DESCRIPTION :		DIGITAL INPUTS - CPU		DRG. No. :	211803009
2	20.01.17	SS	DRAWN	SS	CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL			SHEET No. : 8 OF 23
1	24.02.16	SS	CHKD.	SS	ELGI			A4
REV.	DATE	NAME	APPD.	BSR	ITEM CODE : 03040410176000			



REV.	DATE	NAME	APPD.	BSR	DESCRIPTION:	DRG. No. :	SHEET No. : 9 OF 23
2	20.01.17	SS	SS	SS	CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL	211803009	A4
1	24.02.16	SS	SS	SS	ITEM CODE : 03040410176000		





DRG. No. : 211803009

DIGITAL OUTPUTS



DESCRIPTION:
CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL

DATE 18.11.15

DRAWN SS

SS

REV. DATE

20.01.17 SS

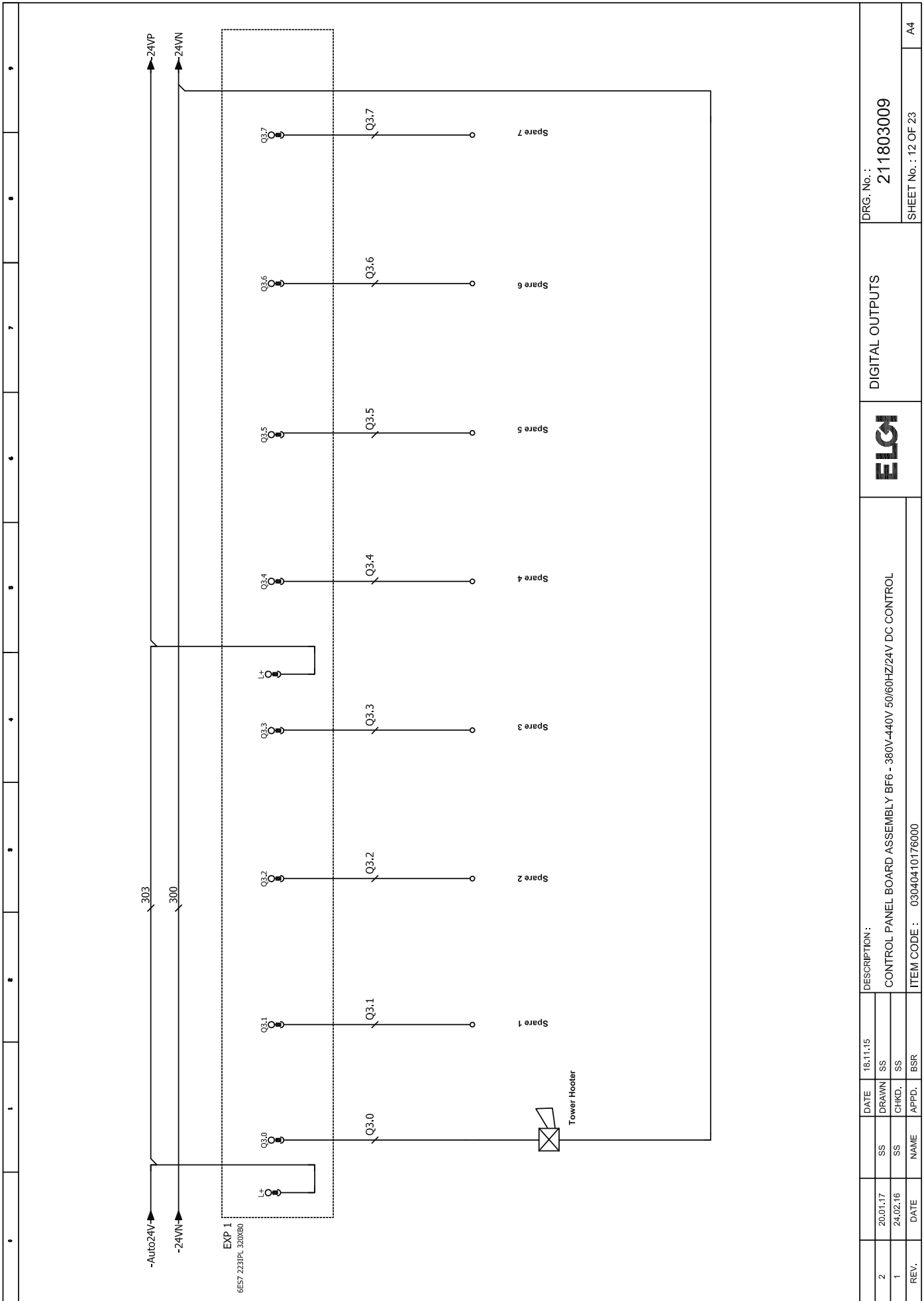
24.02.16 SS

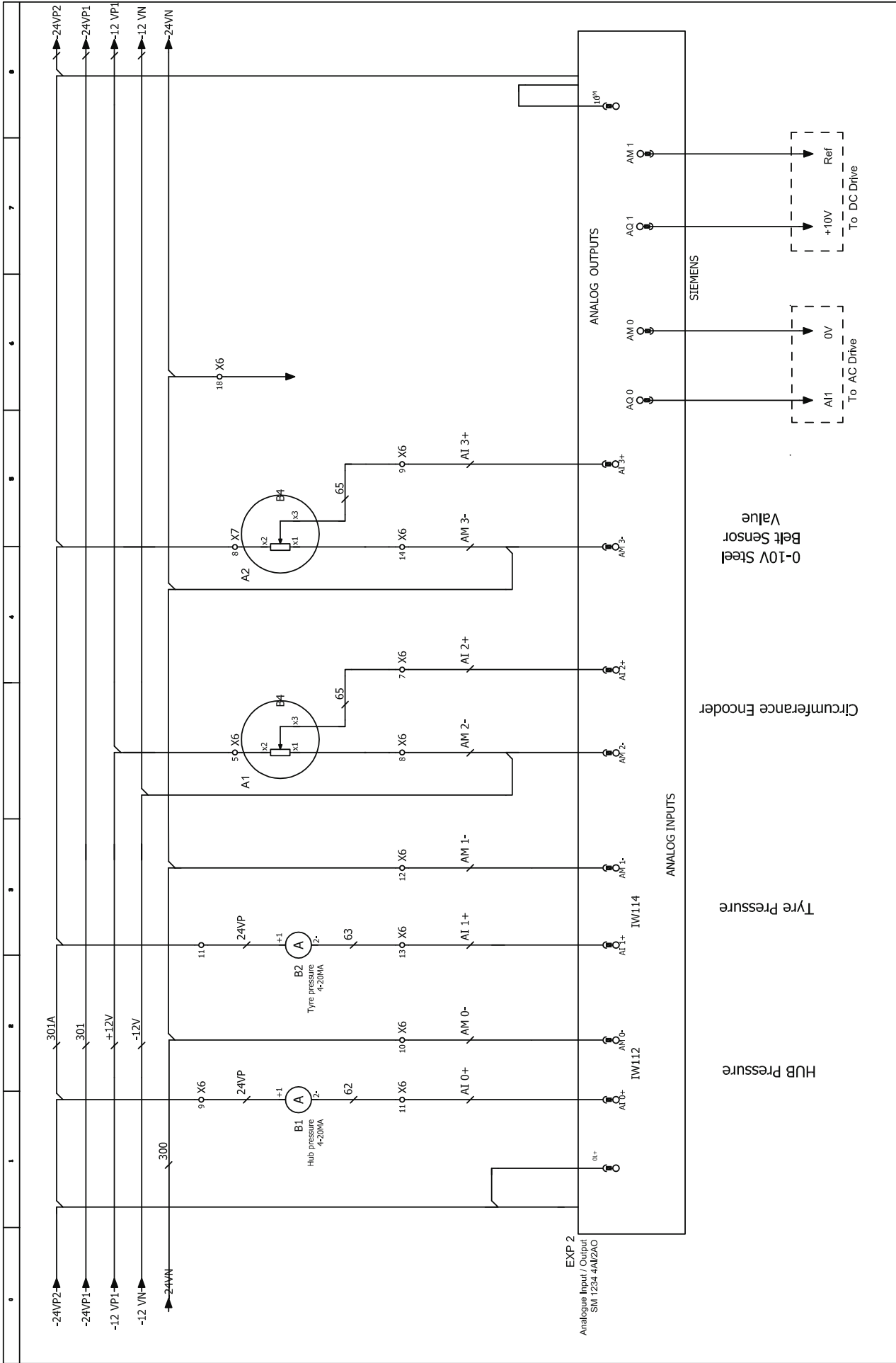
APPD. BSR

ITEM CODE : 03040410176000

SHEET No. : 11 OF 23

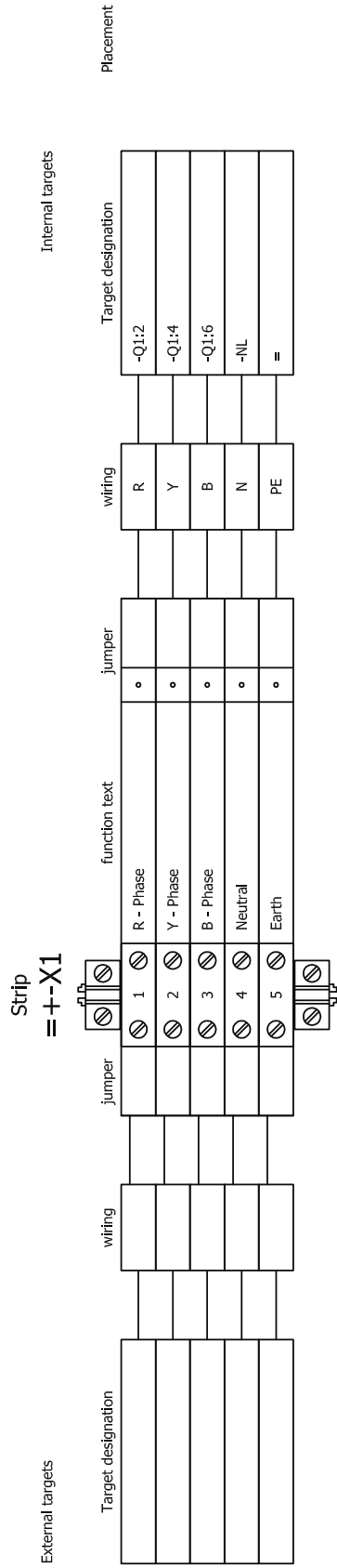
A4





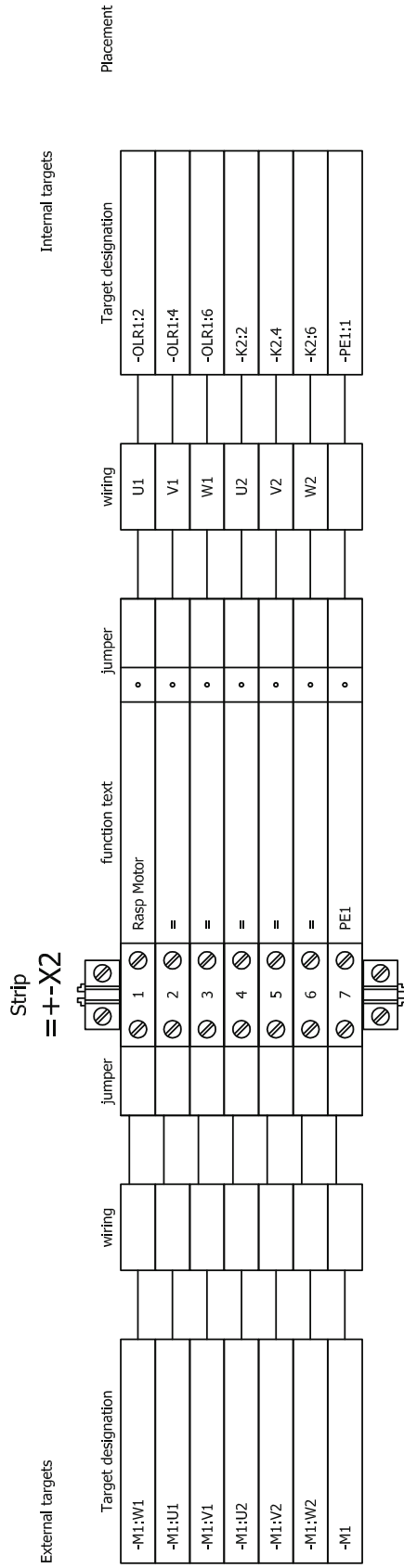
EXP 2 Analogue Input / Output SM 1234 4AI2AO		DATE		DESCRIPTION:	
2	20.01.17	SS	18.11.15	CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL	ANALOGUE INPUTS
1	24.02.16	SS			ELGI
REV.	DATE	NAME	APPD.	BSR	ITEM CODE : 03040410176000
					DRG. No. : 211803009
					SHEET No. : 13 OF 23
					A4

Terminal diagram



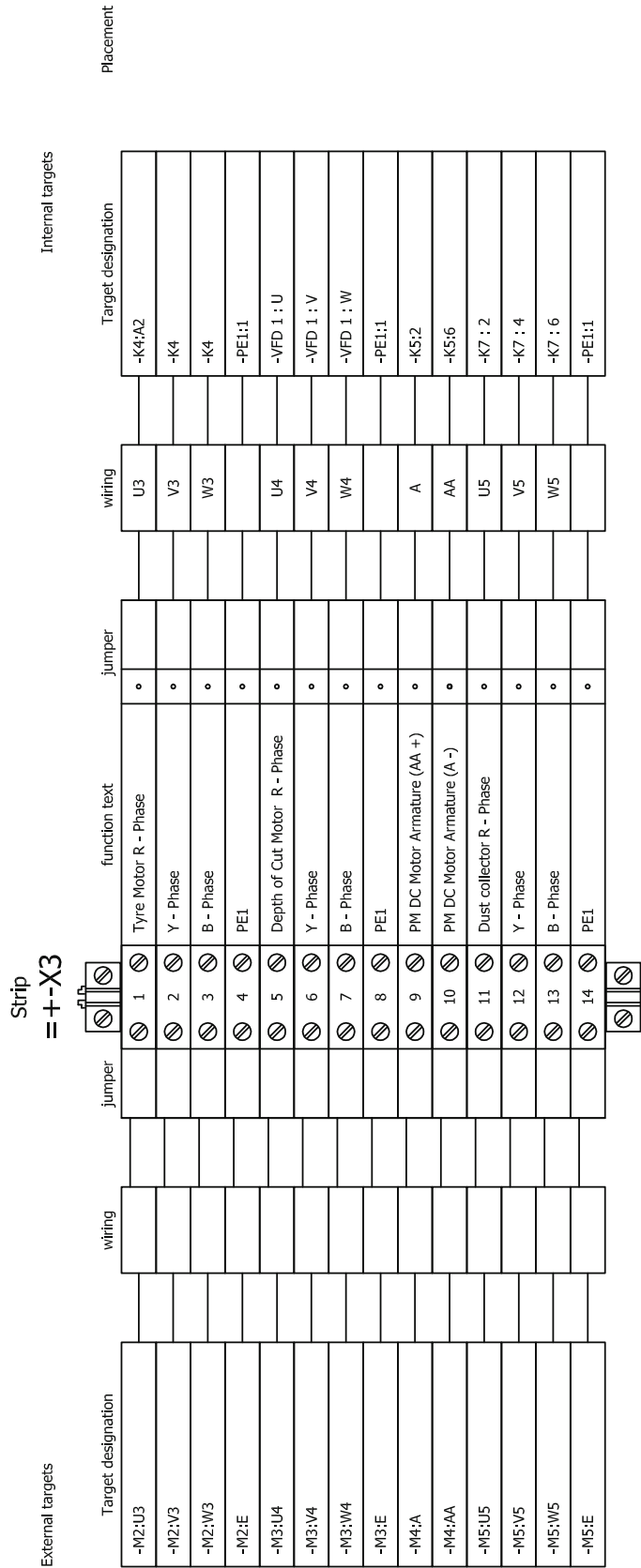
2	20.01.17	SS	DATE	18.11.15	DESCRIPTION:	DRG. No.:	211803009
1	24.02.16	SS	DRAWN	SS	CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL	TERMINAL DIAGRAM =+-X1	
REV.	DATE	NAME	CHKD.	SS	ITEM CODE: 03040410176000	ELGI	
		APPD.	BSR				SHEET No. : 14 OF 23
							A4

Terminal diagram



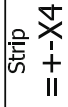
2	20.01.17	SS	DATE	18.11.15	DESCRIPTION :	TERMINAL DIAGRAM ==+-X2	DRG. No. :	211803009
1	24.02.16	SS	DRAWN	SS	CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL	ELGI	SHEET No. : 15 OF 23	A4
REV.	DATE	NAME	CHKD.	APPD.	ITEM CODE :			
				BSR	03040410176000			

Terminal diagram



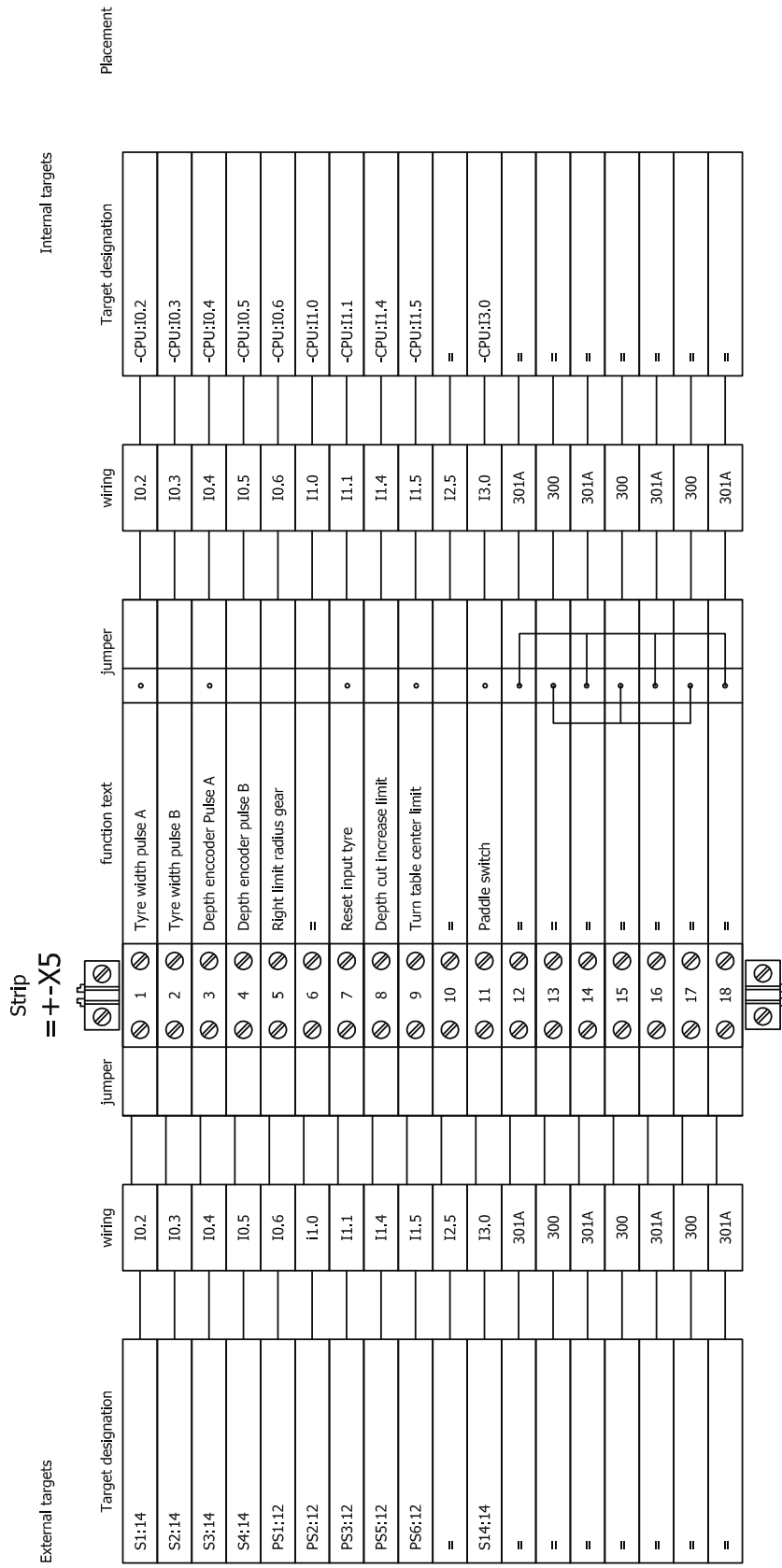
2	20.01.17	SS	DATE	18.11.15	DESCRIPTION :	TERMINAL DIAGRAM =+-X3	DRG. No. :	211803009
1	24.02.16	SS	DRAWN	SS	CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL			
REV.	DATE	NAME	CHKD.	APPD.	ITEM CODE :			
		BSR			03040410176000			SHEET No. : 16 OF 23
						ELGI		
A4								

Terminal diagram									
External targets					Internal targets				
Target designation	wiring	Jumper	Jumper	function text	Jumper	wiring	Target designation	Placement	
=	301A	1	⊗	+24VP	°	301A	-Q7:12		
-EMP:13	301B	2	⊗	EMP	°	301B	-SPP:NO		
EMP:14	301C	3	⊗	=		301C	-CO		
=	303	4	⊗	Auto	°	303	-CO: no		
-CO	304	5	⊗	Manual		304	=		
-2PSS1:14	305	6	⊗	=	°	305	-CO:A1		
-PB7:13	306	7	⊗	Rasp on		306	+24V		
-PB7:14	308	8	⊗	Rasp off	°	308	-T1:A1		
-PB9:13	314	9	⊗	Tyre start		314	24VP		
-K4:A1	316	10	⊗	Tyre stop	°	316	-PBP:14		
+PB5:13	323	11	⊗	Dust collector on		323	+24V		
PB5:14	325	12	⊗	Dust collector off	°	325	-K7:A1		
-EMP:12	I2.0	13	⊗	EMP		I2.0	-CPU:I2.0		
-PB:14	I2.2	14	⊗	Cycle start	°	I2.2	-CPU:I2.2		
-PB2:14	I2.3	15	⊗	Cycle start		I2.3	-CPU:I2.3		
-PB3:14	I2.4	16	⊗	Cycle reset	°	I2.4	-CPU:I2.4		
-3PSS1:14	I3.1	17	⊗	=		I3.1	-CPU:I3.1		
-3PSS2:14	I3.2	18	⊗	Tyre inflate	°	I3.2	-CPU:I3.2		
-2PSS1:14	I3.3	19	⊗	=		I3.3	-CPU:I3.3		
-JOY1:14	I3.4	20	⊗	Depth increase	°	I3.4	-CPU:I3.4		
-PS10:14	I3.6	21	⊗	=		I3.6	-CPU:I3.6		
-PS11:12	I3.7	22	⊗	=	°	I3.7	-CPU:I3.7		
-PS4:12	I1.2	23	⊗	Template center limit		I1.2	-CPU:I1.2		
-S5:14	I1.3	24	⊗	Safety door sensor	°	I1.3	-CPU:I1.3		
-PS8:12	I2.6	25	⊗	Template left limit		I2.6	-CPU:I2.7		
-PS9:12	I2.7	26	⊗	=		I2.7	-CPU:12.7		
=	300	27	⊗	=	°	300	-PS1-24V		
-JOY2:14	I3.5	28	⊗	=		I3.5	-CPU:I3.5		



2	20.01.17	SS	DATE	18.11.15	DESCRIPTION:	CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL	ELGI	TERMINAL DIAGRAM=+X4	DRG. No.:	211803009
1	24.02.16	SS	CHKD.	SS	SHEET No. : 17 OF 23					
REV.	DATE	NAME	APPD.	BSR	ITEM CODE :	03040410176000				A4

Terminal diagram



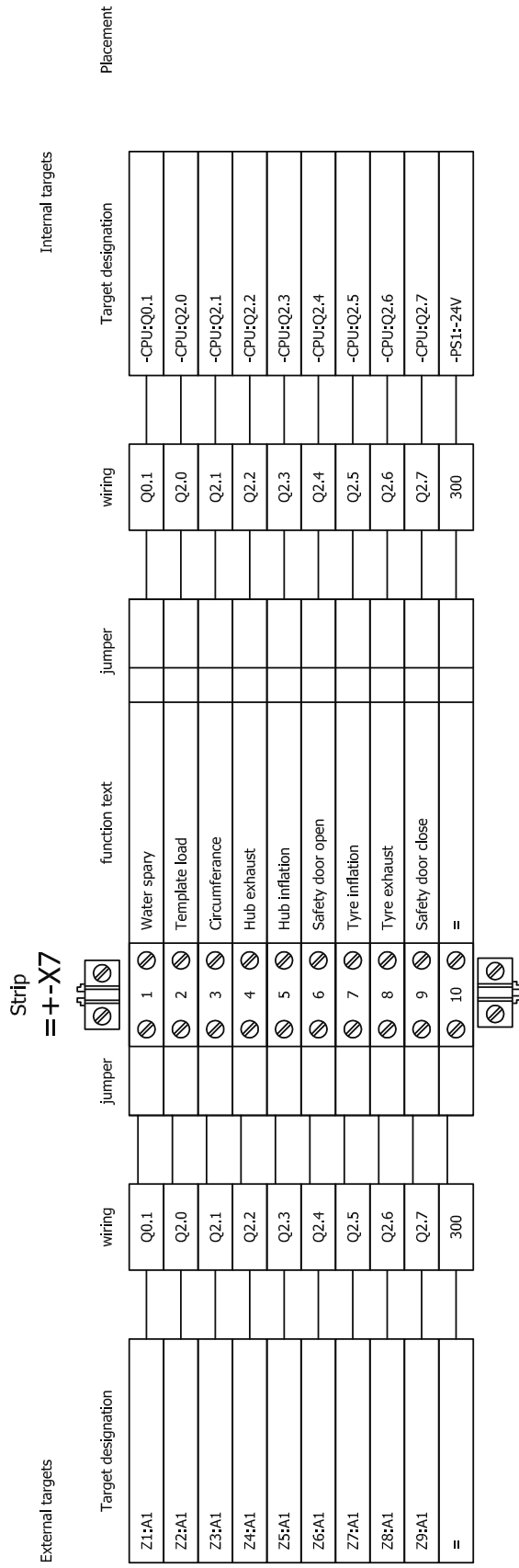
2	20.01.17	SS	DATE	18.11.15	DESCRIPTION :	ELGI	TERMINAL DIAGRAM=+-X5	DRG. No. :	211803009
1	24.02.16	SS	CHKD.	SS	CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL			SHEET No. :	18 OF 23
REV.	DATE	NAME	APPD.	BSR	ITEM CODE :				A4

Terminal diagram

External targets		Strip = +-X6		Internal targets			
Target designation	wiring	jumper	function text	jumper	wiring	Target designation	Placement
=	301A	⊗ 1	+24vp		301A	-PS1:+24V	
=	300	⊗ 2	-24vp	○	300	=	
A1:X1	301A	⊗ 3	Circumference		301A	-AM:AM2-	
=	10.0	⊗ 4	=		10.0	=	
=	+12V	⊗ 5	+12V		+12V	PS2:+12V	
=	10.1	⊗ 6	=		10.1	=	
A1:X3	A12+	⊗ 7	=		A12+	-AM:A12+	
=	-12V	⊗ 8	-12V		-12V	-PS2:-12V	
A2:X3	A13+	⊗ 9	Steel depth sensor		A13+	-AM:A13+	
=	AM0-	⊗ 10	Hub pressure		AM0-	-AM:AM0-	
B1:2	A10+	⊗ 11	=		A10+	-AM:A10+	
=	AM1-	⊗ 12	=		AM1-	-AM:AM1-	
B2:2	A11+	⊗ 13	Tyre Pressure		A11+	-AM:A11+	
A2:X1	AM3-	⊗ 14	=		AM3-	-AM:AM3-	
=	302	⊗ 15	HMI Supply		302	-PS1:+24V	
=	300	⊗ 16	-24vp	○	300	PS1:-24V	
=	E	⊗ 17	PE	○	E	PE	
=	300	⊗ 18	-24vp	○	300	PS1:-24V	

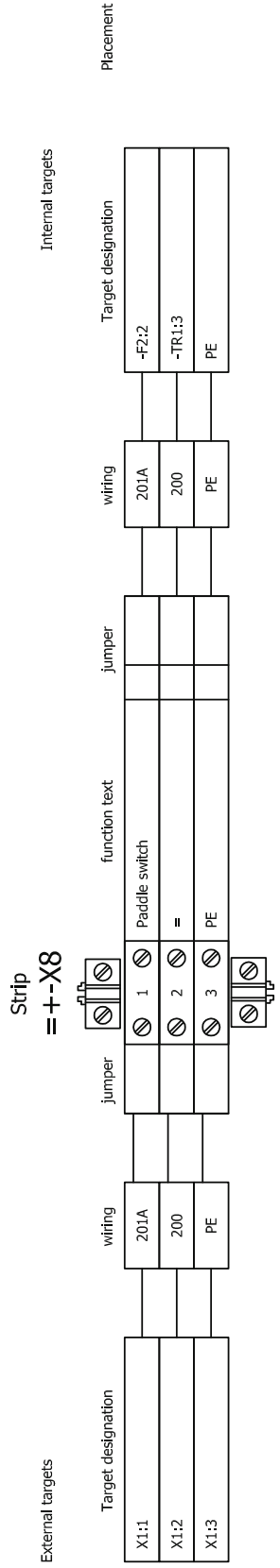
REV.		DATE	NAME	APPD.	BSR.	DESCRIPTION :	
2	20.01.17	SS	SS	SS	SS	CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL	
1	24.02.16	SS	SS	SS	SS	ITEM CODE : 03040410176000	
						TERMINAL DIAGRAM=+-X6	
						DRG. No. : 211803009	
						SHEET No. : 19 OF 23	
						A4	

Terminal diagram

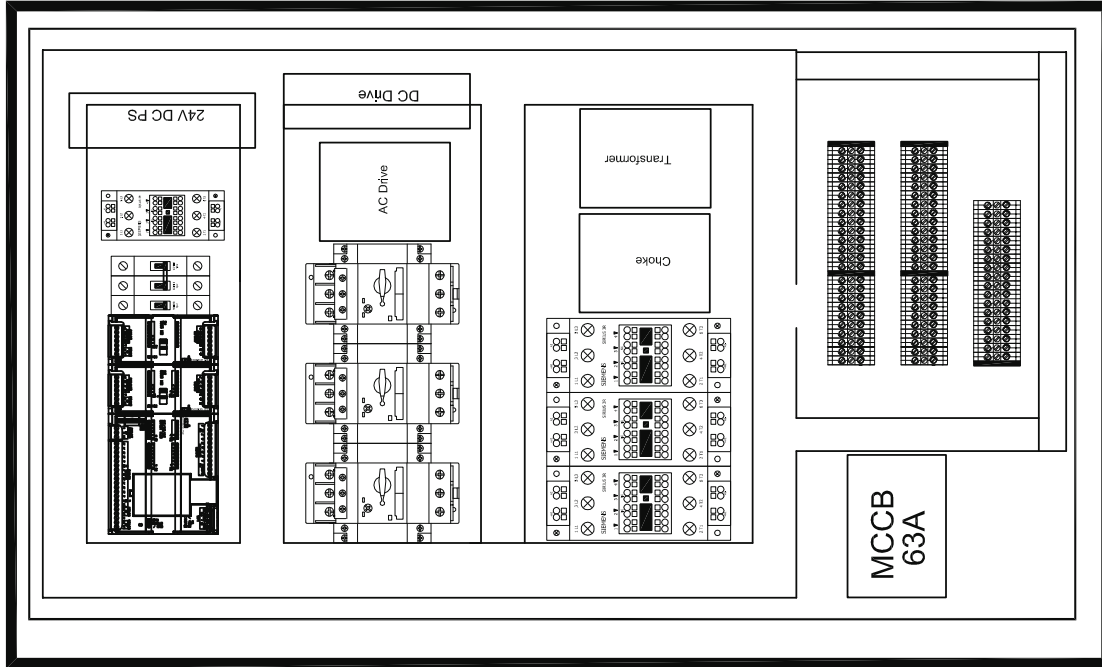


2	20.01.17	SS	DATE	18.11.15	DESCRIPTION:	TERMINAL DIAGRAM =+-X7	DRG. No.:	211803009
1	24.02.16	SS	DRAWN	SS	CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL			
REV.	DATE	NAME	CHKD.	SS	ITEM CODE : 03040410176000			
			APPD.	BSR				SHEET No. : 20 OF 23
						ELGI		A4

Terminal diagram



2	20.01.17	SS	DATE	16.11.15	DESCRIPTION:	DRG. No. :	211803009
1	24.02.16	SS	DRAWN	SS	CONTROL PANEL BOARD ASSEMBLY BF6 - 380V-440V 50/60HZ/24V DC CONTROL	TERMINAL DIAGRAM =+-X7	
REV.	DATE	NAME	CHKD.	APPD.	BSR	ITEM CODE :	03040410176000
						ELGI	SHEET No. : 21 OF 23
							A4

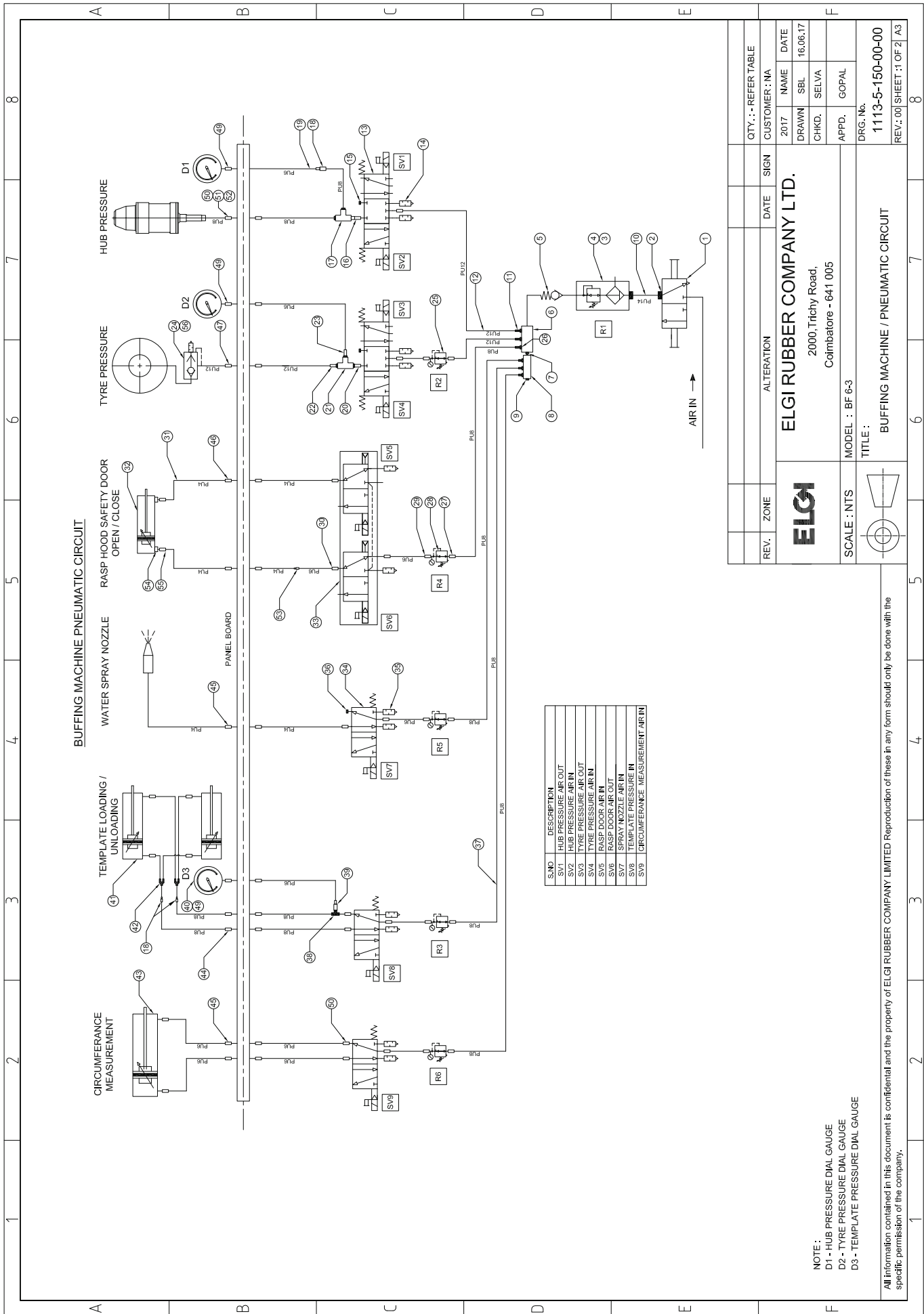


Note: Refer the Drawing for Component Identification Legend

DATE		18.11.15	DESCRIPTION :		CONTROL PANEL BOARD ASSEMBLY BF6 - 380-440V 50-60HZ /24V DC CONTROL / TEXTRO	
2	20.01.17	SS	SS	DRAWN	DRG. No. : 211803009	
1	24.02.16	SS	SS	CHKD.	SHEET No. : 22 OF 23	
REV.	DATE	NAME	APPD.	BSR	A3	
				ELGI		CONTROL PANEL LAYOUT
				ITEM CODE : 03040410176000		

0	1	2	3	4	5	6	7	8	
			ELGI			REMOTE PANEL LAYOUT			DRG. No. : 211803009
			DESCRIPTION: CONTROL PANEL BOARD ASSEMBLY BF6 -380-440V 50-60HZ / 24V DC CONTROL						SHEET No. : 23 OF 23
REV.	DATE	NAME	APPD.	ESR	ITEM CODE : 03040410176000				A4
2	20.01.17	SS	SS	SS	18.11.15	DATE			
1	24.02.16	SS	SS	SS	DRAWN				
					CHKD.				

12 Pneumatic Circuit



Pneumatic Circuit - BOM

S. No.	Description	UOM	Qty.
1		Nos	1
2	B	Nos	1
3	M	Nos	1
4		Nos	1
5		Nos	1
6		Nos	1
7		Nos	1
8		Nos	1
9		Nos	1
10		Meter	-
11	M	Nos	4
12		Meter	-
13		Nos	2
14		Nos	4
15		Nos	2
16	B	Nos	2
17	M	Nos	1
18		Nos	1
19		Meter	-
20	B	Nos	1
21		Nos	1
22	M	Nos	1
23	M	Nos	1
24		Nos	1
25		Nos	1
26	M	Nos	1
27	M	Nos	10
28		Nos	4
29	M	Nos	11
30	M	Nos	3
31		Meter	-
32		Nos	1
33		Nos	1
34		Nos	3
35		Nos	8
36		Nos	1
37		Meter	-
38		Nos	1
39		Nos	4
40	M	Nos	3
41		Nos	2
42		Nos	2
43		Nos	1
44	B	Nos	3
45	B	Nos	7
46	B	Nos	3
47	B	Nos	1
48		Nos	1
49		Nos	4
50	M	Nos	1
51		Nos	2
52		Nos	4
53		Nos	2
54	B	Nos	2
55		Nos	2
56		Nos	1

R1

R2

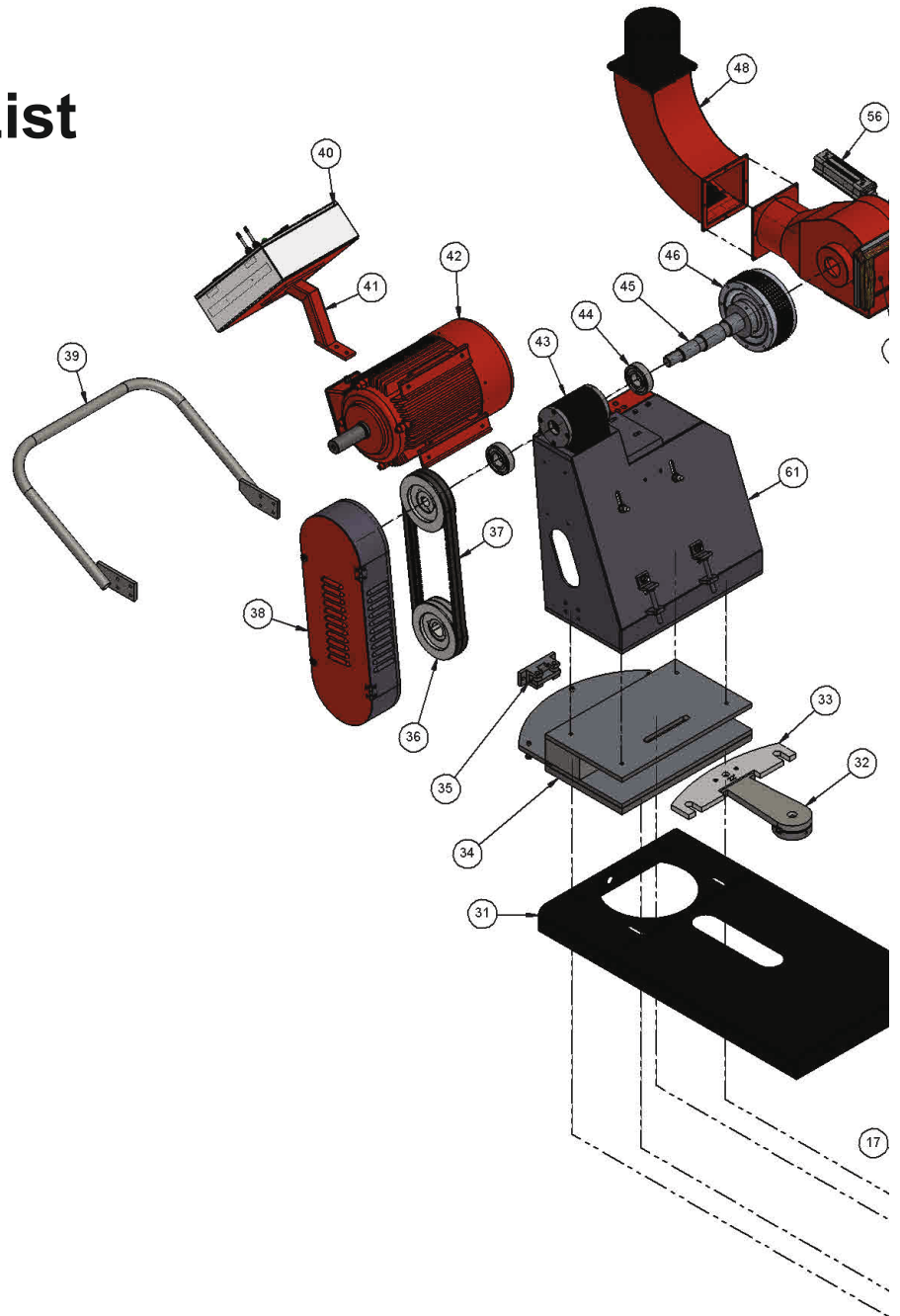
R3

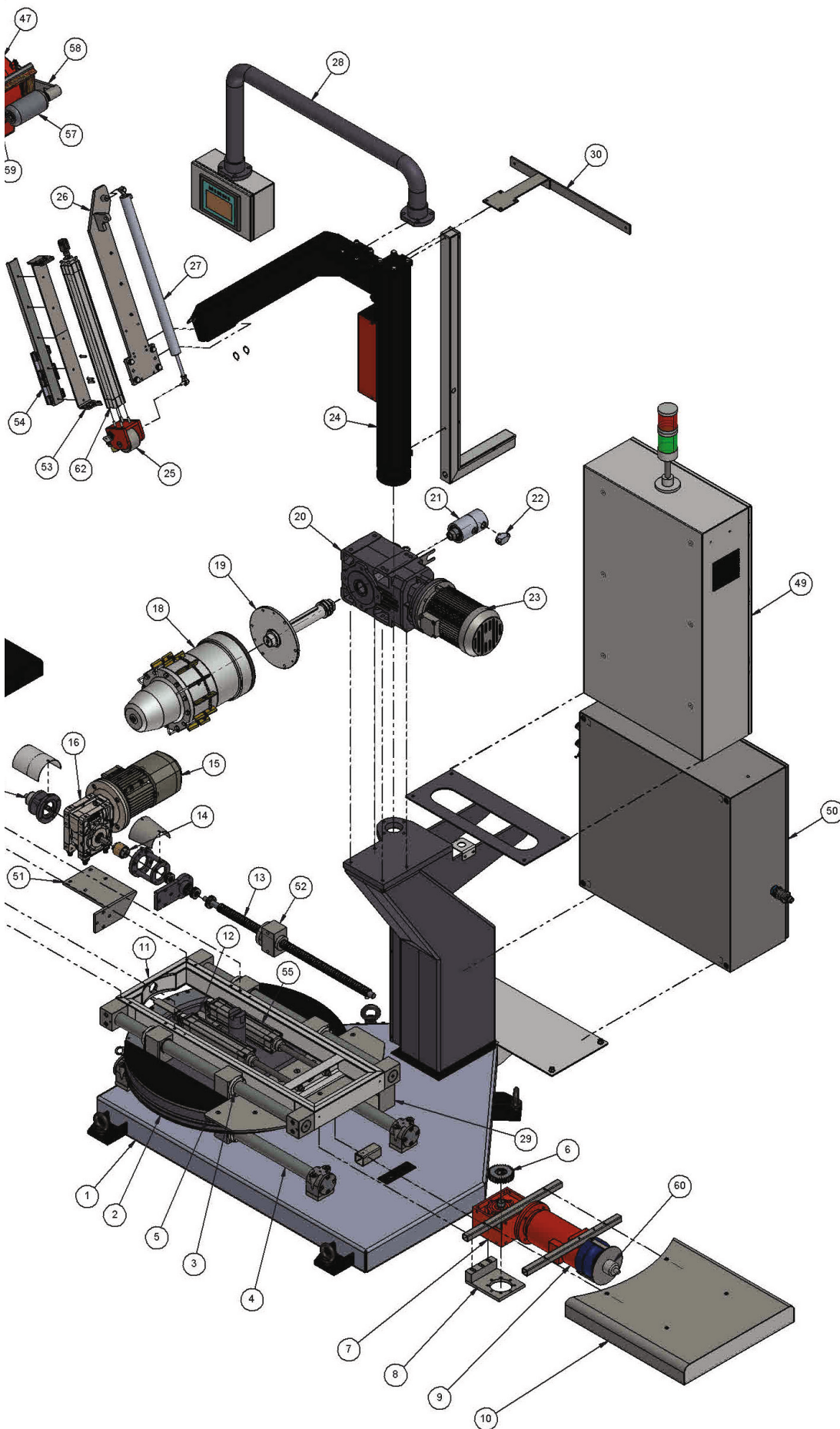
R4

R5

R6

13 Parts List





Parts List - BOM

S. No.	Order Code	Description	UOM	Qty.
1	MA1163/1	MAIN FRAME - BF6	NOS	1
2	MA1163/2	TURN TABLE DOUBLE BEARING ASSEMBLY	NOS	1
3	MA1163/3	SHAFT TURN TABLE - BF6	NOS	2
4	MA1163/4	SHAFT CROSS FEED - BF6	NOS	2
5	MA1163/5	SPUR RING GEAR 3M x 288T x 20W - BF6	NOS	1
6	MA1163/6	PINION 3M x 29T x 20W - BF6	NOS	1
7	MA1163/7	GEAR BOX / TW63U100:1F71B5B3 / TRANSTECH	NOS	1
8	MA1163/8	TRAVERSE MOTOR MOUNTING BRACKET - BF6	NOS	1
9	MA1163/9	PMDC MOTOR 1HP/90V/650 RPM/FLANGE MOUNTING/BHARATH	NOS	1
10	MA1163/10	TRAVERSE MOTOR GUARD - BF6	NOS	1
11	MA1163/11	SLIDE FRAME - BF6	NOS	1
12	MA1163/12	TEMPLATE CYLINDER MOUNTING BRACKET - BF6	NOS	1
13	MA1163/13	ROLLED BALL SCREW WITH END MACHINING / SUPER SLIDE / P No: IR32-10-855L	NOS	1
14	MA1163/14	GEAR COUPLING-M19 MACHINED	NOS	1
15	MA1163/15	MOTOR 1HP - 1440RPM (4P) BN80B4B5 / FLANGED MOUNTED / BONFIGLIOLI	NOS	1
16	MA1163/16	GEAR BOX / W63U10P80B5B3 / BONFIGLIOLI	NOS	1
17	MA1163/17	CROSS FEED SENSOR MOUNTING ASSY	NOS	1
18	MA1163/18	EXPANDING HUB - EH5	NOS	1
19	MA1163/19	MAIN SHAFT BF5	NOS	1
20	MA1163/20	GEAR BOX /1:35.9/A412UH4535.9P90B3/BONFIGLIOLI	NOS	1
21	MA1163/21	ROTTARY SEAL COUPLING (DUAL PR) / BF5	NOS	1
22	MA1163/22	RAPID RELIF VALVE	NOS	1
23	MA1163/23	MOTOR 2HP-1440RPM(4P)	NOS	1
24	MA1163/24	VERTICAL POST - BF6	NOS	1
25	MA1163/25	LINEAR ENCODER ROLLER ASSEMBLY – BF6	NOS	1
26	MA1163/26	ENCODER MOUNTING BASE PLATE ASSEMBLY	NOS	1
27	MA1163/27	DISPLACEMENT ENCODER \ P.NO.152648 \ FESTO	NOS	1
28	MA1163/28	SWIVELING ARM FOR HMI PANEL - BF6	NOS	1
29	MA1163/29	CF SCREW ROD COVER – BF6	NOS	1
30	MA1163/30	PANEL BOARD SUPPORT BRACKET - BF6	NOS	1
31	MA1163/31	COVER SLIDE FRAME - BF6	NOS	1

S. No.	Order Code	Description	UOM	Qty.
32	MA1163/32	TEMPLATE HOLDER ARM - BF6	NOS	1
33	MA1163/33	TEMPLATE FOR 445-65R 22.5	NOS	1
34	MA1163/34	RASP COLUMN SADDLE ASSEMBLY - BF6	NOS	1
35	MA1163/35	TEMPLATE FOLLOWER ASSY - BF6	NOS	1
36	MA1163/36	PULLEY TAPERLOCK	NOS	2
37	MA1163/37	V-BELT (B-47)	NOS	2
38	MA1163/38	BELT GUARD BF5	NOS	1
39	MA1163/39	RASP HANDLE - BF6	NOS	1
40	MA1163/40	CONTROL SWITCH BOARD ASSEMBLY BF6	NOS	1
41	MA1163/41	OPERATING PANEL MOUNTING BRACKET - BF6	NOS	1
42	MA1163/42	MOTOR 15HP	NOS	1
43	MA1163/43	BEARING HOUSING WITH END COVER	SET	1
44	MA1163/44	BALL BEARING 6308ZZ / SKF	NOS	2
45	MA1163/45	RASP SPINDLE / BF5	NOS	1
46	MA1163/46	RASP HEAD ASSEMBLY (JET HUB)	NOS	1
47	MA1163/47	RASP HOOD - BF6	NOS	1
48	MA1163/48	RASP HOOD DUCT - BF6	NOS	1
49	MA1163/49	CONTROL PANEL BOARD ASSEMBLY BF6	NOS	1
50	MA1163/50	PNEUMATIC PANEL BOX	NOS	1
51	MA1163/51	SCREW ROD MOTOR SUPPORT BRACKET - BF6	NOS	1
52	MA1163/52	SCREW ROD NUT MOUNTING BLOCK - BF6	NOS	1
53	MA1163/53	ENCODER CYLINDER MOUNTING BRACKET	NOS	1
54	MA1163/54	LINEAR GUIDE CARRIER ASSEMBLY - IGUS	NOS	1
55	MA1163/55	PNEUMATIC CYLINDER - DSBC-50-200-PPVA-N3/P.NO.1366955/FESTO	NOS	2
56	MA1163/56	"PNEUMATIC CYLINDER- DSBG-40-80-PPVA-N3/P.NO:1646550/FESTO"	NOS	1
57	MA1163/57	ROLLER - RASP HOOD SENSOR	NOS	1
58	MA1163/58	BEARING ARM	NOS	1
59	MA1163/59	SAFETY DOOR RASP HOOD	NOS	1
60	MA1163/60	TURN TABLE MOTOR ENCODER BRACKET	NOS	1
61	MA1163/61	RASP COLUMN - BF6	NOS	1
62	MA1163/62	"PNEUMATIC CYLINDER - DSBC-40-450-PPVA-N3/P.No:1462834/FESTO"	NOS	1

14 Essential Spares List

S. no.	Order Code	Description	UOM	Qty
1	MA1163/ES/1	Seal Kit For Pneumatic Cylinder DSBC-40-450-PPVA-N3 / Festo	Nos	1
2	MA1163/ES/2	Seal Kit For Pneumatic Cylinder DSBC-50-200-PPVA-N3 / Festo	Nos	2
3	MA1163/ES/3	Seal Kit For Pneumatic Cylinder DSBC-40-80-PPVA-N3 / Festo	Nos	1
4	MA1163/ES/4	Gear Coupling	Nos	2
5	MA1163/ES/5	Pinion 3M x 29T x 20W - Bf6	Nos	1
6	MA1163/ES/6	Pressure Transmitter S-10/0-6 Bar/4-20MA/DC 10-30V/P 9013539/Wika	Nos	1
7	MA1163/ES/7	Seal Kit For Solenoid Operated Valve 5/3 /Janatics	Nos	2
8	MA1163/ES/8	Seal Kit For Solenoid Operated Valve 3/2 / Festo	Nos	1
9	MA1163/ES/9	Seal Kit For Solenoid Operated Valve 5/2 /Festo	Nos	1
10	MA1163/ES/10	Power Supply 24VDC 6.2A / 6EP1333-1LD00 / Siemens - PS1	Nos	1
11	MA1163/ES/11	MCCB 63A / 3VT1706-2DA36-0AA0 / Siemens - Q1	Nos	1
12	MA1163/ES/12	Power Contactor 32A / 3RT20 27-1BB40 / Siemens - K1	Nos	1
13	MA1163/ES/13	Power Contactor 9A / 3RT2016-1BB42 / Siemens - K5, K6	Nos	1
14	MA1163/ES/14	Power Contactor 10A, 2NO+2NC / 3RH21 22-1BB40 / Siemens - CO	Nos	1
15	MA1163/ES/15	Addon Block 1NO / 3RH29 11-1HA10 / Siemens - K5	Nos	1
16	MA1163/ES/16	Addon Block 1NO /3RH29 11-1HA02 / Siemens - K6	Nos	1
17	MA1163/ES/17	MCB DP 16A / 5SL4216-7RC / Siemens - Q5	Nos	1
18	MA1163/ES/18	MCB SP 2A / 5SL4102-7RC / Siemens - Q6	Nos	1
19	MA1163/ES/19	MCB 6A SP / 5SL61067RC / Siemens - Q7	Nos	1
20	MA1163/ES/20	MPCB 2.4-4A / 3VU13 40-1MJ00 / Siemens - Q2	Nos	1
21	MA1163/ES/21	MPCB 1.6-2.4A / 3VU13 40-1MH00 / Siemens - Q3	Nos	1
22	MA1163/ES/22	MPCB 3.2-5A / 3VU13 40-1NJ00 / Siemens - Q4	Nos	1
23	MA1163/ES/23	Stat - Delta Timer / 3RP15761NQ308K / Siemens - T1	Nos	1
24	MA1163/ES/24	OLR 11-16A / 3RU2126-4AB0 / Siemens - E1	Nos	1
25	MA1163/ES/25	DC Drive / 1HP / 1phase - DR2	Nos	1
26	MA1163/ES/26	Transformer / 150VA,415V/220V / Procon - TR1	Nos	1
27	MA1163/ES/27	Input Line Choke /2HP / 3PHASE / Procon - CK1	Nos	1
28	MA1163/ES/28	Single Phase Preventer / SM301 / L&T - SPP	Nos	1
29	MA1163/ES/29	Fuse Terminal With Glass Fuse / Connectwell - F1	Nos	3
30	MA1163/ES/30	Indication Lamp Red 220V AC / 3SB52 85-6HC03 / Siemens - SL1	Nos	1
31	MA1163/ES/31	Indication Lamp Yellow 220V AC / 3SB52 85-6HD03 / Siemens - SL2	Nos	1
32	MA1163/ES/32	Indication Lamp Blue 220V AC / 3SB52 85-6HF03 /Siemens - SL3	Nos	1
33	MA1163/ES/33	Emergency Stop + NC / 3SB5203-0UC01 / Siemens - EMP	Nos	1
34	MA1163/ES/34	2 Position Selector Switch / 3SB5000-2AB01 / Siemens - 2ESS1	Nos	1
35	MA1163/ES/35	No Element / 3SB54 00-0B / Siemens - 2PSS1	Nos	1
36	MA1163/ES/36	Push Button Green / 3SB50 00-0AE01 / Siemens - PB7	Nos	1
37	MA1163/ES/37	Push Button Red / 3SB50 00-0AC01 / Siemens - PB6	Nos	1
38	MA1163/ES/38	NC Element / 3SB54 00-0C / Siemens - EMP	Nos	1
39	MA1163/ES/39	Push Button Yellow / 3SB50 00-0AD01 / Siemens - PB3	Nos	1
40	MA1163/ES/40	Joy Stick - 2 Position / 2no / Reputed - JOY1, JOY2	Nos	1
41	MA1163/ES/41	Tower Lamp With Siren / 24VDC / Reputed - TL1	Nos	1
42	MA1163/ES/42	Bellows	Nos	1
43	MA1163/ES/43	Inductive Proximity Sensor / Model.IME18-05BPPZC0S / Sick Inductive - PS1-9	Nos	2
44	MA1163/ES/44	Proximity Connector / Model.DOS-1204-W / Sick - PS1-9	Nos	2