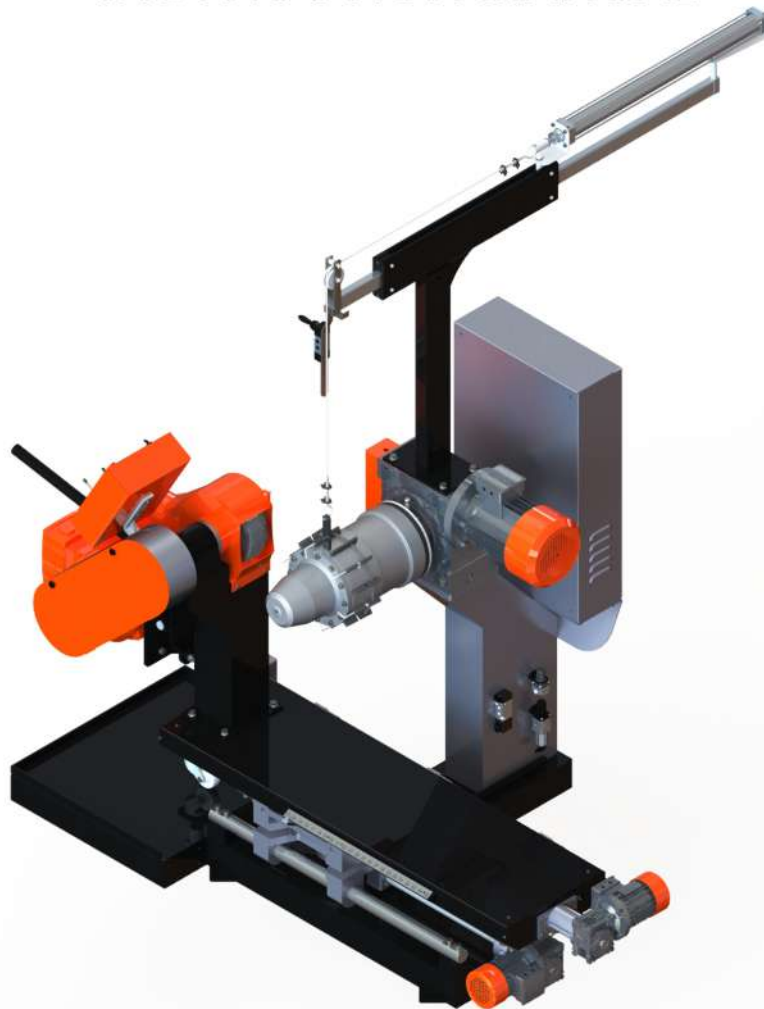




BUFFING MACHINE BF 2E

INSTRUCTION MANUAL



ELGI Rubber Company Limited

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Foreword

The Buffing Machine BF 2E 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 a motorized buffing pass for optimum cut depth. This facilitates improved productivity. This 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.

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

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1. General Information / Introduction

Introduction

Elgi Rubber Company Limited is a pioneer in Tyre Retreading, providing one stop solutions for the Tyre Retreading Segment.

Thank you for purchasing our product Buffing Machine.

Company Profile:

ELGI Rubber Company Limited has its headquarters in India with subsidiaries in Australia, Brazil, Kenya, Netherlands, Sri Lanka and the United States of America. ELGI manufactures a comprehensive range of raw material, equipment, tools and accessories used in the 'Rubber Industry', predominantly in the 'Tyre sector'. With state of the art manufacturing facilities, testing laboratories and R&D centres around the world, ELGI is able to deliver products to the most demanding users.

ELGI's products are sold under the following brands:

Jet



Retread and Repair Systems

CRS



Cincinnati Retread Systems
Expandable Rims & Hubs

Armonas



Retread Process Equipment

Pincott



Rasp Blades, Hubs & Spacers

Carbrasive



Brazed Carbide Tools

Midwest Rubber



Midwest Rubber
Gums, Adhesives & Sealants

Westernweld



Tyre & Tube Repair Products

Rubber Resources



Reclaim Rubber
from
RUBBER RESOURCES
Reclaim Rubber

1. General Information / Contact Information

Contact information

Our Head Office is located at Coimbatore, Tamil Nadu,

India. Address : ELGI Rubber Company Limited,
Super A Unit,
Coimbatore Private Industrial Estate,
Kurichi, Coimbatore - 641021

Phone : (91)-422-2321000

E-Mail : enquiry@in.elgirubber.com

Website : www.elgirubber.com



Technical Support

ERCL's Technical team will answer your technical queries regarding the installation, use, troubleshooting, and maintenance of our products. You may also email your queries to enquiry@in.elgirubber.com

Reference materials

Upon email request to enquiry@in.elgirubber.com, reference materials including Outline, Mounting drawings, Operator's Manuals, Technical Bulletins, Pneumatic schematics, Electrical schematics, Troubleshooting procedures and Spare parts details will be provided.

Warranty

Warranty of the equipment is applicable for a period of 6 months from the date of commissioning or 9 months from the date of Invoice whichever is earlier, against manufacturing defects only. Warranty for bought out Electrical Pneumatic items etc., will not be governed by the manufacturer's warranty.

1. General Information / Limitation of Liability

Limitation of Liability

The manufacturer assumes no liability for damage resulting from:

- Disregard / non-observance of the operating manual
- Intentional misuse
- Use other than as intended
- Operation by untrained personnel
- Operation by lay persons (to carry out maintenance work, etc)

Technical modifications to the unit have not been agreed with the manufacturer

Use of replacement parts that have not been approved by the manufacturer

Responsibilities of the operator

The unit is used for commercial purposes. The operator of the unit is therefore subject to the statutory obligations relating to occupational safety. In addition to the safety instructions in this instruction manual, the regulations on safety, accident prevention and environmental protection that apply to the unit's field of use must be complied with.

In particular, the following apply:

- The operator must be familiar with the applicable occupational safety regulations.
- The operator must ensure that all employees who use the unit have read and understood this operating manual.
- The operator must also train personnel at regular intervals and inform them of the dangers that can arise when using the unit.
- The operator must provide personnel with the necessary protective equipment.
- The operator must have all safety devices checked regularly for operability and completeness.

Documentation

Content and structure

This instruction manual is an essential part of this unit. It contains instructions and information on how to use the unit safely and must be available to all users throughout the unit's service life. This instruction manual is intended for use by trained operating personnel.

2. Safety

Safety

The Buffing Machine is a commercial machine, used in Tyre retreading facilities for buffing worn-out tyres before retreading.

Requirements for personnel

Trained and qualified personnel who know how to use the unit and whose specialist training, skills, experience and knowledge of the relevant regulations enables them to carry out the tasks assigned to them independently and recognize and avoid potential hazards.

Hazard information

Hazard information includes terms, symbols, and instruction used in this manual or on the equipment to alert both operating and service personnel to the recommended precautions in the care, use and handling.

Labeling scheme for integrated text boxes and references

The following safety notices are used in this manual.

Certain terms are used throughout this manual or on the equipment labels. User need to familiarize with their definitions and significance.



Danger:

Imminent hazards which, if not avoided, will result in fatal or serious injury.



Warning:

Potential hazards which, if not avoided, could result in fatal or serious injury.



Caution:

Potential hazards or unsafe practices which, if not avoided, may result in minor or moderate injury.

Caution:

Potential hazards or unsafe practices which, if not avoided, may result in Product damage.

Important:

Important information or recommendation concerning the subject under discussion

Note:

Point of interest for more efficient or convenient equipment operation additional information or explanation concerning the subject under discussion.

2. Safety / Symbols and Definitions

Symbols and Definitions



Earth / PE:

Earth or PE connection to be made to avoid the earth leaked shock



Warning:

Disconnect Power supply before Servicing or Cleaning



Warning:

No Loose Connection



Warning:

Foot Protection Required



Warning:

Crush Hazard - Keep feet clear



Warning:

Finger protection on rollers



Warning:

Electric Shock Hazard

Danger:

Electrical Shock or Burn Hazard

Turn off power supplying this equipment before working inside.

Warning:

Electric & Pneumatic power sources present. Disconnect electric power and compressed air supply

Danger:



Crush Hazard



Keep Hands Clear, Follow lockout procedure before servicing

2. Safety / General Hazards


General hazards



Following are description of general hazards and unsafe practices that could result in fatal, severe injury, or product damage. Specific warnings and cautions not appearing in this section are found throughout the manual.



 <p>Danger</p> <p>Serious personal injury</p> 	<p>This is Electrical Class 1 product which runs with 415 V AC, Three Phase, 50 Hz, AC source where it could consume maximum of 25A running current.</p> <p>Do not allow or Direct or indirect contact with Electrical Parts without proper PPE and safe procedure.</p> <p>Direct or indirect contact with Electrical part inflicts severe corneal injuries leading to permanent disability or fatal accident.</p> <p>This product is not intended for use in explosive, or potentially explosive, atmospheres.</p>
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 <p>Warning</p> <p>Serious personal injury</p> 	<p>This Machine has Cutting Blades which is operated by steady torque motor.</p> <p>Do not allow or Direct or Indirect contact with Blade Section.</p> <p>Don't Try or alter the safety protection at Blade section.</p> <p>Direct or indirect contact with Blade parts may leads to permanent disability or finger loss.</p>
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2. Safety / General Hazards

<p style="text-align: center;">Caution</p> <p style="text-align: center;">Minor or moderate injury</p> <div style="text-align: center;">  </div>	<p>This Machine has rotating shaft which run with product running speed Do not allow or Direct or Indirect contact with rotating shafts. Don't Try or alter the safety protection at rotating shaft section. Direct or indirect contact with rotating shaft may leads to minor or moderate injury.</p>
--	--

<div style="text-align: center;">  <p style="margin: 0;">Danger</p> <p style="margin: 0;">Serious</p> </div> <div style="text-align: center; margin: 10px 0;">  </div> <p style="text-align: center; color: white;">personal injury</p>	<p>This Machine has Power and Control circuit electrical panel which is operate 415 V, Three phase AC, 50Hz, source.</p> <p>Do not operate the machine at Electrical panel at open condition. Always ensure that, the electrical panel is completely in locked condition.</p> <p>Direct or indirect contact with electrical panel components or conductive foreign materials or dust deposition may cause highly flammable in and around the machine area. It may lead to serious personal injury to the Operator.</p>
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<div style="text-align: center;">  <p style="margin: 0;">Danger</p> <p style="margin: 0;">Serious</p> <p style="margin: 0;">Personal Injury</p> </div> <div style="text-align: center; margin: 10px 0;">  </div>	<p>This Machine has Belt and Pulley rotating parts which is operated by the motor drive.</p> <p>Do not allow or Direct or indirect contact with rotating parts.</p> <p>Don't Try or alter the safety protection at belt drive rotating parts enclosure.</p> <p>Direct or indirect contact with belt drive rotating parts may leads to moderate or Serious injury.</p>
---	---

2. Safety / Hazard Information

Hazard information

BF 2E should be installed and operated in manufacturing or laboratory facilities by trained personnel only. Due to the considerable risks and hazards associated with the installation and operational use of any equipment incorporating automated functions, the operator must follow product warning labels and instructions to the user regarding safety. To prevent exposure to direct or indirect hazards, following all safety precautions specified throughout this manual and exercise safe operating practices as per electrical safety standards.

Lock Out Tag Out (LOTO)

This Machine designed with LOTO concept as per OSHA standards. Whenever the machine undergoes any Electrical or Mechanical or Cleaning activity, turn OFF the main ISOLATOR switch and follow LOTO procedure.

List of Hazards Associated with this Machine

- Electrical hazards.
- Pneumatic hazards.
- Sharp Edge hazards.
- Rotating and pinch point hazards.

Use standard safety procedure while working with respective source and use proper recommended PPE's.

Grounding

This machine needs additional body protecting grounding or Earth, which needs to be connected with the Machine to Ground / Earth with Copper wire or conductor or rod.

Other Hazards

The following hazards are typical for this product family when incorporated for intended use:

- a) Risk of injury when lifting or moving the unit.
- b) Risk of exposure to hazardous Electrical energy through unauthorized removal of access panels, doors or protective barriers.
- c) Risk of exposure to hazardous Electrical Energy and injury due to failure of personnel to use proper PPE while involving in maintenance or troubleshooting.
- d) Risk of exposure to hazardous or lethal voltage through unauthorized removal of cover, doors, or access panels.
- e) Risk of exposure to hazardous when connected with non-standards voltage source apart from mention specification in machine electrical name plate.

Disposal

This product contains components that are considered hazardous industrial waste. If a situation occurs where the machine is non-functional and cannot be repaired, it may be returned to Elgi Rubber Company Limited who, for a fee, will ensure adequate disassembly, recycling, and/or disposal of the product.

2. Safety / Personal Protecting Equipment

Personal Protecting Equipment

<p>Caution</p> <p>Serious personal injury</p>	<p>Personal Protecting Equipment listed below to be used wherever applicable.</p> <p>Failing to use may cause serious personal injury</p>
--	---



Industrial Safety Goggle to be used for Eye protection from any fine dust particles during Buffing Process.



Industrial Safety Mask to be used during the Buffing process in order to avoid health issues.



Industrial Safety Shoes to be used to protect the foot from impact due to Tyre rolling on the foot. Electrical Safety Shoes to be used to protect from any Electrical Shock.

3. Getting started

Getting started

Chapter Overview

Use information in this chapter to prepare your Buffing Machine BF 2E for operation. The order of information presented in this chapter is the same as the order of task that you will need to perform. The bestway to get your machine ready for operation is to start at unpacking and work your way through connection.

This chapter contains the following information:

- **Introduction-** Introduces the Buffing Machine BF 2E, lists important feature, and describes about machine function.
- **Unpacking-** Provides important information about unpacking the Buffing Machine BF 2E.
- **Package Contents-** Displays and describes all components shipped with this machine may vary as per the optional features purchased.
- **Mounting-** Describes how to assemble the Buffing Machine parts
- **Connections-** Explains how to connect power, control cables and pneumatic connections of this machine.

Introduction

The Introduction section includes sub section:

- About BF 2E
- Buffing Machine's nomenclature
- Unpacking
- Package Contents

About BF 2E

The Buffing Machine BF 2E 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 motorized buffing pass for optimum cut depth.

This facilitates improved productivity due to motorized movements. The machine is operator-friendly and it's 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.

3. Getting started / Buffing Machine

Buffing Machine - Nomenclature

Buffing Machine BF 2E major sections

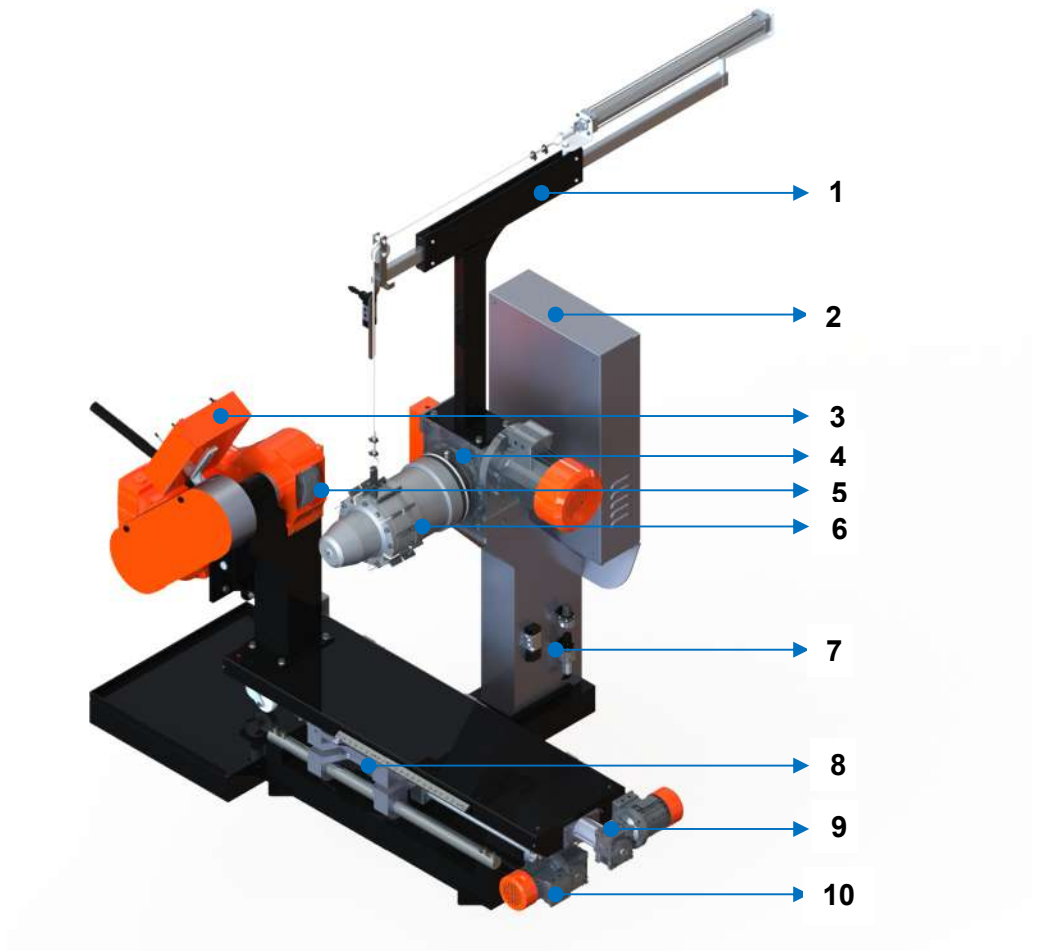


Figure 3-1 Buffing Machine

1	Tyre Lift – (Optional)	6	Expanding HUB EH5
2	Control Panel	7	Pneumatic Assembly
3	Operator Panel	8	Turn Table Assembly
4	Tyre Drive	9	Radius Motor
5	Buffing Head	10	Depth of Cut Motor

3. Getting started / Unpacking

Unpacking

The unpacking section includes the below:

- Incoming inspection.
- Un-Packaging guidelines.

Incoming inspection

Upon arrival, inspect all shipping containers for singles of damage. If you discover shipping damages, document the damage (photographically if possible), then immediately notify the shipping carrier and Elgi Rubber Company Limited.

The shipping carrier is responsible for any damage occurring during transportation from Elgi Rubber Company Limited to your receiving dock.

Packing guidelines

Unpacking

- To prevent equipment damage or loss of small components, use care when removing packaging materials.
- After unpacking, review the Package Contents section and verify that all components are available (optional items would be available only if purchased).
- Lift the machine only at the indicated locations of the machine.
- Save all shipping containers and packaging materials, including cover and plugs. Use these specialized packing materials when shipping the machine to another location.

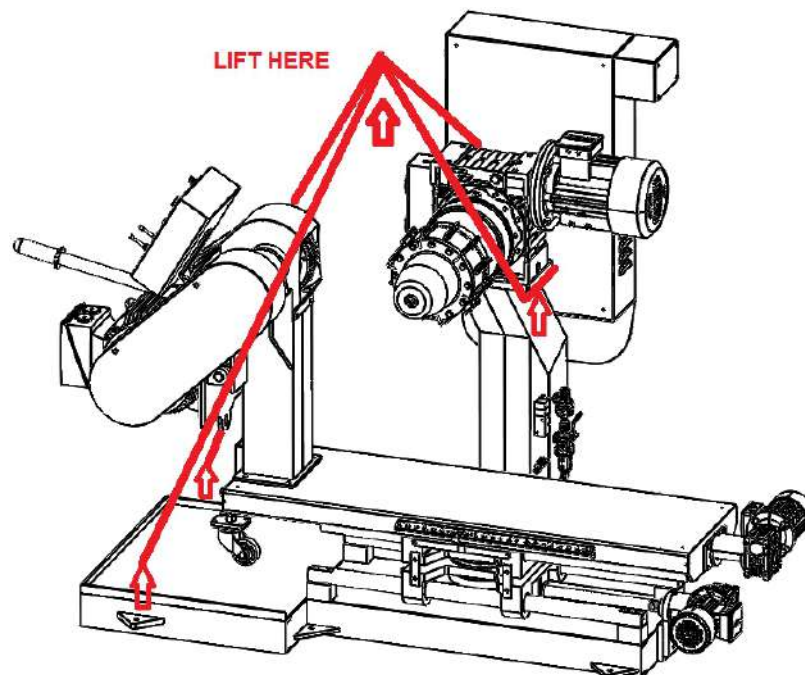


Figure 3-2 Lifting Lug

3. Getting started / Unpacking

Shipment Lock Clamps

- Shipment Lock clamps would be used to fastening the base and top for transportation.
- Before operating the machine, Shipment Lock clamps (1 and 2) should be removed.

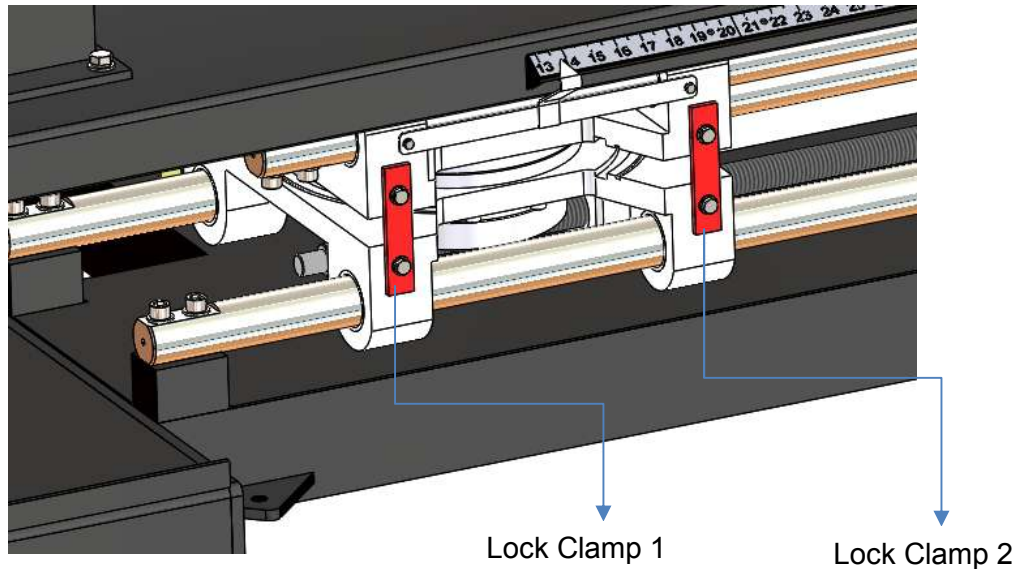


Figure 3-3 Shipment Lock Clamps

Packing

- When packing a machine for shipment, be sure to remove all accessory items not originally attached to the machine including external electrical and pneumatic incoming connections.
- Refer to Buffing Machine packaging instruction drawings and image in the technical reference chapter for details on packaging the machine using Elgi Rubber Company Limited supplied shipping materials.
- When shipping machine, release the stored energy like pneumatic supply locked in cylinder.
- Ensure the proper fixing of shipment lock clamps before shipping.

3. Getting started / Package Contents

Package Contents

Table1

S.No	Shipping Pallet Box Contents	Qty
1	Buffing Machine Assembly	1 No
2	Tyre Lift (Optional)	1 No

Contents description

Each item listed in Table1 is described below

1. Buffing Machine Assembly: Tyre Drive Unit, Buffing head, Turn Table, Pneumatic and Electrical assembly of the Tyre buffing machine.
2. Tyre Lift Assembly – Tyre lift Post with Pneumatic Cylinder Assembly.

3. Getting started / Specifications of the Product

Specifications of the product:

Model	BF 2E
Machine	Buffing Machine
Buffing Radius Capability	13" - 35"
Power Requirement	13 KW
Crown R1 Buffing	Manual
Shoulder Buffing R2 Buffing	NA
Machine Control System	Electrical
Forward & Depth movements	Motorized
Expanding Hub – 12Segment	Included
Tyre Lift	Optional
Monorail Compatibility	Compatible
Tyre RPM	~40RPM
Cyclone Filter Compatibility	Cyclone Filter DCE 1 & DCE 2E
Machine Dimension - LxWxH (With Tyre lift)	~2250 x 2100 x 2200 mm
Machine Weight	~450 Kg
Rasp Motor	15 HP
Minimum Tyre Size	6.50 - 14"
Maximum Tyre Size	12.00 - 24.5 Within Buffing Radius 35"
Air Pressure Requirement	7 to 8 Bar
Supply Voltage	220-440V 50/60Hz (Refer Name Plate)
Control Voltage	220V AC / 24V DC (Refer Name Plate)
Installation	Grouting Recommended

Description

The Buffing Machine BF 2E consists of the following major components:

1. **Main frame:** The main frame is a fabricated steel structure which houses all the main components like turn table assembly, Tyre drive unit, Rasp column assembly, Pneumatic and Electrical controls
2. **Turn Table Assembly:** The turn table assembly is mounted on the bottom of the main frame on two Shafts which carries the rasp column assembly with the rasp motor. The assembly has two independent screw rods which facilitates the movement of the table and setting the buffing are which is motorized. Since the movements are motorized and limited with the help of sensors provided on the base frame.
3. **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 hub is fixed for buffing different tyres.
4. **Buffing Head:** The buffing head consists of the rasp head assembly. This assembly is driven by a 15 HP motor. The rasp hood is to be connected to a dust extractor for removal of rubber dust. Rasp Head is mounted on a slide frame. The operator panel is conveniently located for easy operation.
5. **Electrical Panel:** This is located on the column of the main frame. All electrical components are located inside the panel.
6. **Pneumatic Circuit:** The pneumatic components are located below the electrical panel and are controlled from the operating panel.
7. **Tyre Lift:** For easy loading and unloading of tyres on to the expanding rim lift is provided.

3. Getting started / Assembly and Commissioning

Assembly and Commissioning Tools

1 Accessories

Optional	<ul style="list-style-type: none"> • Cyclone Filter DCE 1 or DCE 2E
Optional	<ul style="list-style-type: none"> • Tyre Lift

2 Tools

Tools and materials required for installation and maintenance

- Spanners - Double End (6 to 36) - 1 Set
- Spanners - Ring End (8 to 19) - 1 Set
- Box bit – 16,17,18,19 - 1 Each
- Adjustable Spanner 12” – 1No.
- Screw Driver - 6” & 8” - 1 No. Each
- Line tester - 1 No.
- Allen Keys – mm - 1 Set
- Combination Pliers - 8”, 10” - 1 No. Each
- Nylon Hammer - 1 No
- Cir-clip Pliers - Internal & External - 6” - 1 No Each
- Ball Peen Hammer (500 Gr) - 1 No.
- Pipe Wrench 18” - 1No
- Others - Insulation Tape, Teflon Tape, WD40 Rust removing Spray

3 Materials

- Gear oil ISO VG-Grade 320 or SAE 140 - 1 Ltr
- 2.5 Sq.mm x 4 core flexible copper cable Length as per installed position
- PU8 Pneumatic Hose – 6M

3. Getting started / Preparing Product for Use

Preparing Product for Use: Installation and Commissioning

Unloading

Unload the machine only by using eye bolt provision given in the machine. Remove the machine bed bolt & take out the wooden pallet.

Positioning

The machine does not need any foundation. Machine should be grouted to the floor, at the indicated anchoring points. Position the machine in the desired location on a level surface. The area where the machine is located should be well illuminated and free of noise.

- Rear side of the machine should be provided with the clearance of 1.25 m from the panel, to do maintenance and service on the panels.
- Right side and left side of the machine should be provided with the clearance of 0.6 m from the Handle.
- Front side of the machine should be provided with the clearance of 2.1 m to bring and load the Tyre onto the machine.

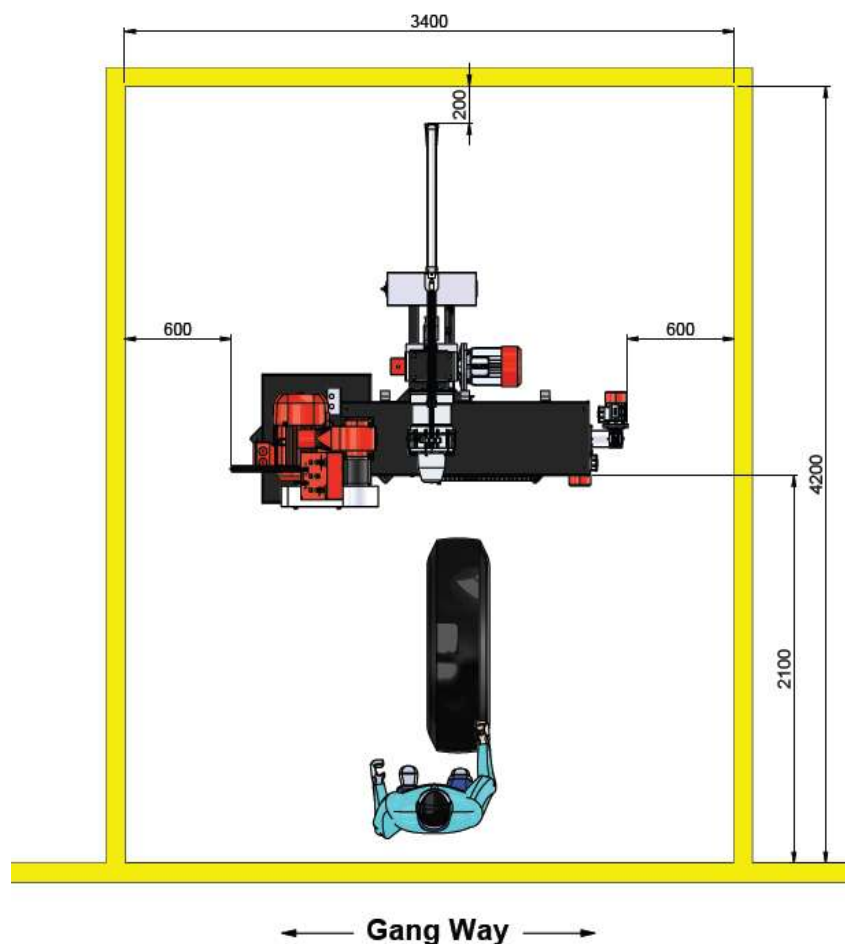


Figure 3-4 Machine Footprints

3. Getting started / Connection Layout

Connection Layout

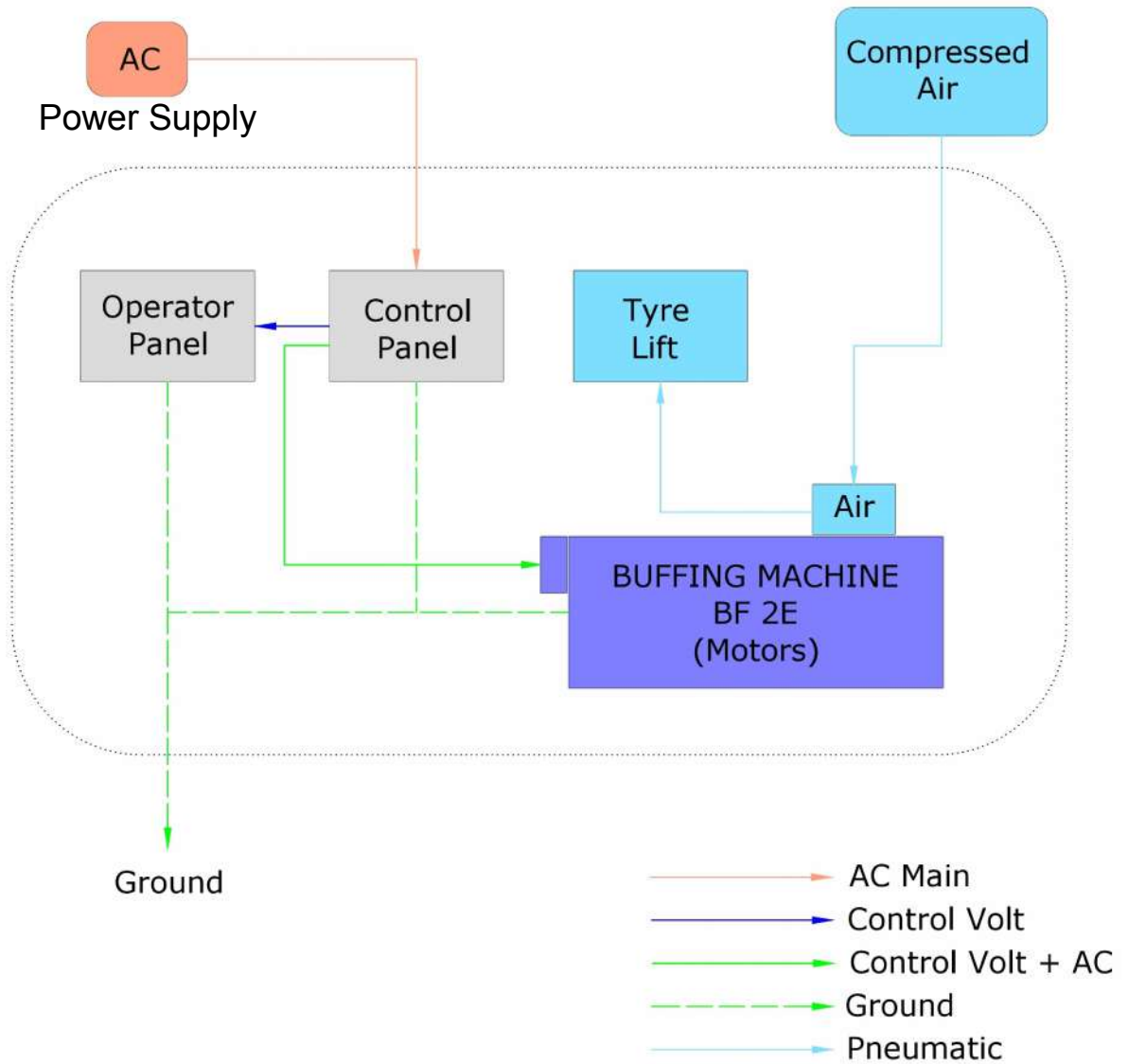



Figure 3-5 Connection Layout



3. Getting started / Connections

Connections

Connections section describes the below:

- Electrical Connection
- Grounding
- Pneumatic connection

 <h3 style="color: yellow;">Caution</h3> <p>Possible equipment damage</p>	<p>The Pneumatic connections and Electrical connections should be made after completion of mounting instruction.</p> <p>After the connection, don't turn on the energy sources until understand the Operation Instructions.</p> <p>Failing of above caution will lead to machine damage or non-recoverable parts damage.</p>
--	--

 <h3 style="color: yellow;">Danger</h3> <p>Serious personal injury</p> 	<p>Electrical and Pneumatic source should be connected as specified in machine specification.</p> <p>Follow proper safety procedure.</p> <p>Don't Power on the machine until understand the machine operating Procedure.</p> <p>Failing of this may lead to serious personal injury.</p>
--	--

Electrical Connection

Follow the below instructions to establish power connection to this machine.

- Connect the machine with the help of 2.5 Sq mm copper 3 core cable.
- From the nearest air point, draw a line using PU8 Pneumatic hose with quick connection fittings.

AC Power supply

1. Verify the input voltage before connecting the power cables to the machine terminals.
2. Recommended input voltage is 415 V AC, 50 Hz, 3 ϕ , 25 A

Important: To operating with <415 V AC, >50Hz contact Elgi Technical Support Team to set the configuration.

3. Getting started / Connections

3. Connect the input supply as depicted in Fig 3-6.

Important: The Earth cable (Yellow Green) of the AC input 3 core cable is internally connected to the machine Electrical panel and machine parts. Separate Ground connection to the machine body to be made as described in the Grounding section (Fig 3-7).



Figure 3-6 Electrical Connection - AC main line input at Control Panel

Caution

Possible machine damage

Do not reverse the polarities when connecting the AC electrical power cables to the Buffing machine.
Reversed AC supply connection will damage the electrical components.

Caution

Possible machine damage

When relocating the machine to another country, verify the input voltage rating configured in the machine with the Voltage specification of the country where the machine is to be installed and operated.

Failing to verify and modifying the configuration may possibly damage the machine.

3. Getting started / Connections

Grounding

The Buffing Machine BF 2E metal body needs Ground / Earth to be connected. Use suitable connector and copper wire to make ground connection.



Figure 3-7 PE / Ground connection on Panel and Machine

Pneumatic connection

Follow the below instructions to establish the pneumatic connection to this machine.

1. Connect PU-8 pneumatic tube to the quick connection port. Input pressure should be in the range of 10-12 bar.
2. Set the regulator at 8 Kg/cm² by rotating the knob clockwise and then lock it.

Important: Incoming air pressure should be maintained at 8 bar during machine operation. Impact - when the pressure goes less than 8 bar, it affects the next cycle of Inflation / Deflation of Hub Tyre.



Figure 3-8 Pneumatic Connection's

4. Operation / Controls and Indicators

Operation

Chapter Overview

This chapter provides the information to start up and control the Buffing Machine BF 2E.

This chapter describes the following sections:

- **Controls and Indicators** - displays and describes exterior controls and indicators on Control Panel and Operating Panel
- **Initial Startup** -Explains how to start the Buffing Machine and to verify the proper operation and running

4. Operation / Controls and Indicators

Controls and Indicators

The Controls and indicators section describes the below:

Electrical Panel

Control Panel has Isolator / LOTO switch



Panel Door has a indicator label which indicates the presence of electrical power in the Panel.



Figure 4-1 Isolator / LOTO switch

ISOLATOR/LOTO:

- ISOLATOR/LOTO is the main Electrical ISOLATOR for this machine to Power ON / OFF.
- It is a Two position isolator Switch which has the indication mark ON/OFF.
- Whenever the machine undergoes maintenance, the service personnel can be isolate Electrical Energy to the machine for safety.

 <p>Danger</p> <p>Serious personal injury</p> 	<p>When the ISOLATOR/LOTO is in OFF position, the electrical energy to the electrical circuit only isolated. However, the incoming electrical supply still exists in input terminals of ISOLATOR/LOTO.</p> <p>The ISOLATOR/LOTO will only isolate the electrical supply to other electrical parts to the machine. It will not isolate the pneumatic energy source.</p> <p>When the ISOLATOR/LOTO is in OFF position, the pneumatic energy still exists in the machine. The pneumatic energy should be released from the machine manually by reducing pressure using regulator in pneumatic section or Closing the Ball Valve.</p>
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4. Operation / Controls and Indicators

Operating Panel / HMI - Machine Control

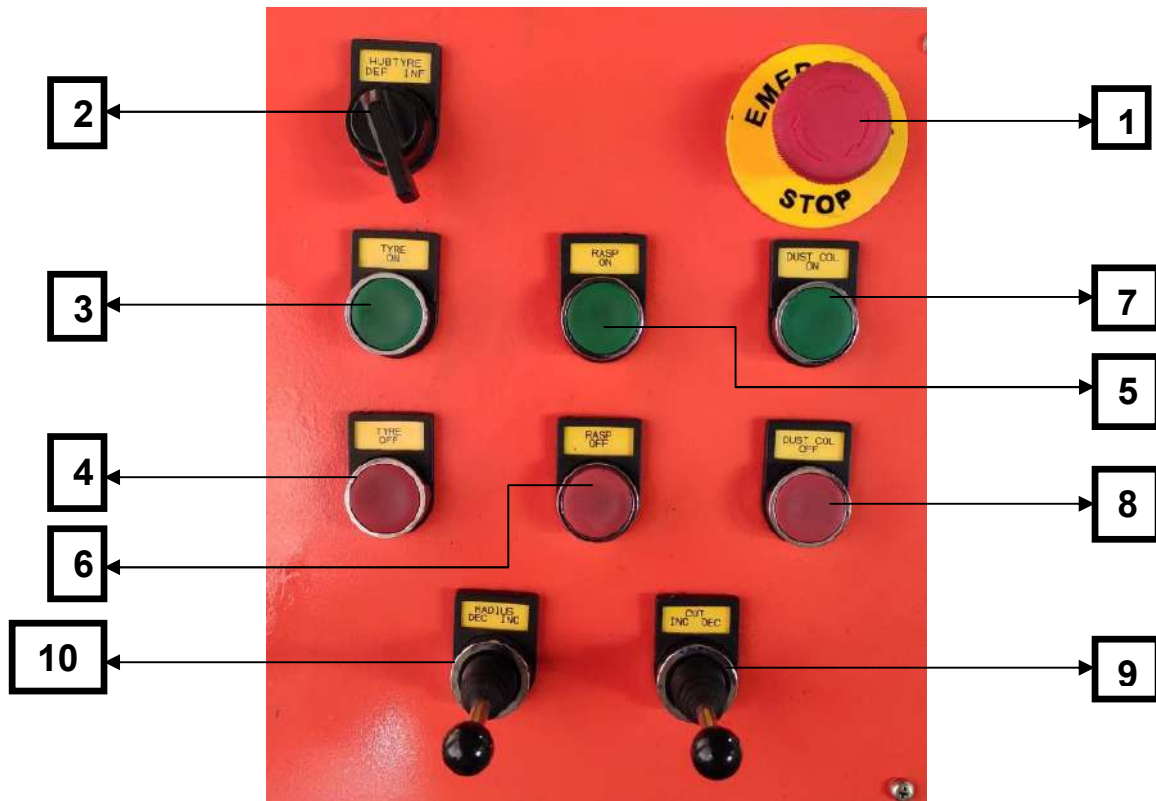


Figure 4-2 Operating Panel / HMI

Control Elements and Descriptions:

1. Emergency Stop

Emergency Stop - Mushroom Head push button provides machine halt function when it is pressed in emergency condition.

2. HUB – Inflate / Deflate

It is a 2 position Pneumatic selector switch.

INFLATE

Selecting the Pneumatic selector switch INFLATE, Expanding Hub to be energized to Clamp the Tyre with the help of Expanding Rim. At the same time tyre getting pressurized.

DEFLATE

Selecting the Pneumatic selector switch DEFLATE, Expanding Hub to be exhausted to release the Tyre. At the same time tyre pressure getting released.

3. Tyre ON

Tyre ON - Push Button (Green)

This starts the Tyre rotation

4. Operation / Controls and Indicators

4. Tyre OFF

Tyre OFF - Push Button (Red)
This stops the Tyre rotation

5. Rasp ON

Rasp ON - Push Button (Green)
This starts the rasp motor

6. Rasp OFF

Rasp OFF - Push Button (Red)
This stops the rasp motor.

7. Dust Collector ON

Dust Collector ON - Push Button (Green)

This starts the Dust Collector to Turn ON, So that Rubber Scrap produced during buffing can be collected and deposited in the tank.

8. Dust Collector OFF

Dust Collector OFF - Push Button (Red)

This stops the Dust Collector to Turn OFF

9. Cut – Increase / Decrease

CUT is a 3 position joystick to adjust the gap between Buffing Head and tyre position (Truck / LCV) and to set Depth of Cut.

10. Radius - Increase / Decrease

RADIUS is a 3 position joystick to set the Buffing radius from 13” to 35”

Caution

Serious
personal injury



The Emergency Stop Button is only for stopping the machine function during uncertainty situation.

It is not a regular Function Button to Stop the machine.



Do not use the Emergency Stop Button as a safety interlock. It will not protect from any accident during machine troubleshooting / operation / maintenance.

Use ISOLATOR/LOTO to isolate the electrical energy of machine.

Use LOTO while doing troubleshooting or maintenance.

4. Operation / Initial Startup

Initial Startup

 <p>Danger</p> <p>Serious personal injury</p> 	<p>Read and familiarize with all the instructions given in this manual.</p> <p>Do not bypass the safety and Operating Instruction which is given in this manual.</p> <p>Do not energize the machine with any out of specification source like over voltage or low-pressure air supply.</p> <p>Failing this will lead to serious personal injury.</p>
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Powering the Energy Sources of machine

The Buffing Machine BF 2E needs two type of energy sources.



1. Electrical Energy Source
2. Pneumatic Energy Source

1. Electrical Energy Source.

- Establish the electrical connection as per Fig 3-6.
- Energize the Buffing Machine with three Phase 415 V AC, 50 HZ AC supply.
- Refer the detailed instructions given in section-3 Getting Started / connections / Electrical connection.

2. Pneumatic Energy Source.

- Establish the pneumatic connection as per Fig 3-8.
- Energize the Buffing Machine by providing 8 bar air pressure.
- Refer the detailed instructions given in section-3 Getting Started / connections / Pneumatic connection.

 <p>Danger</p> <p>Serious personal injury</p> 	<p>Before turning on the main ISOLATOR/LOTO, ensure that the main electrical panel door in the machine should be in closed condition and the Emergency Button should be in released condition.</p> <p>Failing of this will lead to Serious personal injury.</p>
---	---

4. Operation / Pre - Operation Checks

Pre - Operation Checks

- Remove the shipment clamps that are provided below the table, which are marked and painted red/orange (Refer to included drawings)
- When moved to new location where the supply voltage is different than the previous location, check with Elgi Technical Support to set up the system suitable for the new location.
- Check for the free movement of all the moving parts.
- Check that all nuts & bolts are properly tightened.
- Check Tyre Drive and Rasp Blade rotation.
- Check if the Function of Expanding Hub with Expanding rim mounted on it.
- Check if the Buffing Head free movement left and right. If not move freely adjust the Caster wheel nut.
- Check the forward and reverse movement Buffing Head by operating RADIUS and CUT Joystic.
- Check and ensure no twists, crush in airline.
- Check for any earth leakage (always maintain the Earth (PE) - Neutral (N) Voltage < 2 V, preferred <1 V)
- Check for any air leakage on the pneumatic lines.
- Ensure that the main inlet pressure is 8 Kg/Cm² and Tyre pressure 1.2 Kg/Cm²
- Ensure that the lock nut on the rasp spindle shaft is securely tightened
- Check if all sensors are in proper function.
- Ensure the Filter Regulator (FRC) bowl is free of water.
- Ensure the Hub pressure ball valve is closed (Ref Figure : 4-4)

Important: It is recommended to conduct the above safety checks weekly once and document it. This is to ensure that the human and machine safety functions are working properly. Practicing these safety checks will reduce accidents and these safety check documents can be used for safety audit and quality audit purposes.

Important: Do not operate the Expanding Hub without Rim. Operating Expanding Hub Inflation without Expanding rim causes Stems struck on Hub. Stems not return to home position.

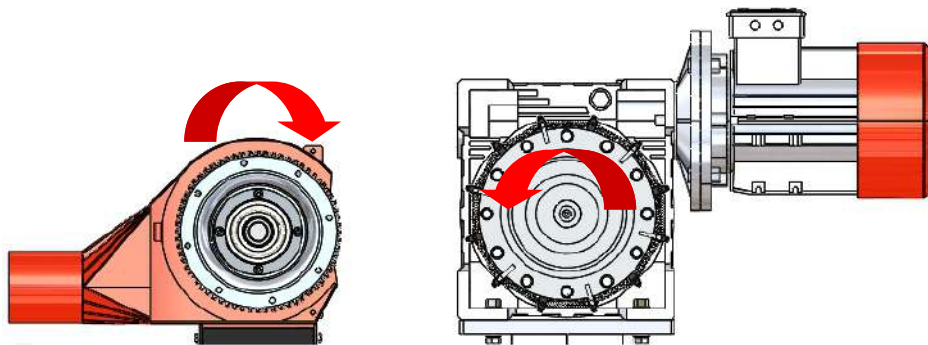


Figure 4-3 Direction of rotation

4. Operation / Operating Instruction


Operating Instruction:

Buffing Machine


1. Decide the buffing radius depending on the wear/size of the tyre. Refer to the retreader manual for further various settings.
2. Mount suitable Expanding Rim for available Tyre size and ensure stems are locked in position.
3. Load the tyre by using Tyre lift or Monorail Fixed lift arrangements.

Note: For loading and unloading of tyre in the Buffing machine, 1.Tyre lift BF 2E
2.InHouse Monorail Options are available. Check ELGI Website for Product details

Note: Different sizes of Expanding Rim's available based on tyre size requirement.
Check ELGI Website for Product details. www.elgirubber.com

 <p style="font-size: 24px; font-weight: bold; color: yellow;">Danger</p> <p style="font-size: 24px; font-weight: bold; color: white;">Serious personal injury</p>	<p>Ensure the Tyre Lift Hook / J Hook inserted fully in to the tyre bead before loading the Tyre to the Expanding rim and thereby making the Tyre to fall on the Floor.</p> <p>Failing this will lead to serious personal injury</p>
---	--

4. Position the Tyre on the center of the rim.
5. Insert the Tyre inflation hose on the Expanding Hub Quick Coupler.
6. Expand the rim to clamp the Tyre.
7. Move the turn table to touch the tyre by the help of the joystick.
8. Switch on the Dust Collector.
9. Switch on the tyre drive rasp motor and the tyre drive.
10. Move the Buffing head manually left and right and increase depth of cut. Repeat the process and complete the buffing in multiple Passes.

 <p style="font-size: 24px; font-weight: bold; color: yellow;">Danger</p> <p style="font-size: 24px; font-weight: bold; color: white;">Equipment Damage</p>	<p>Increasing Exceeded depth of cut will damage the Tyre and more will cause the Machine damage.</p> <p>Ply removal of tyre / Hub / Main Shaft / Buffing Head damage lead to machine breakdown.</p>
--	---

4. Operation / Operating Instructions

11. Stop the rasp motor, tyre drive and Dust Collector.
12. Ensure the required surface texture and finish of the Buffed Tyre.
13. Measure the width, circumference and record the details in the job card.
14. Release Tyre pressure by using pneumatic selector switch. After releasing tyre pressure completely, deflate the Hub pressure by using ball Valve (Ref Figure : 4-4)
15. After releasing Hub Pressure Close the Ball valve (Ref Figure : 4-4)


 <p>Danger</p> <p>Equipment Damage</p>	<p>Releasing Hub and tyre Pressure at the same time will make the expandable hub and RIM Damage or Re-location of rim segments happen. It leads to creating up normal blasting sound.</p> <p>Expanding Rim segments which will dislocate the rim segments due to sudden pressure drop.</p> <p>Ensure Hub pressure Ball Valve OFF in condition every buffing process.</p>
--	--



Figure 4-4 Hub Pressure Release

4. Operation / Do's and Don'ts

Do's and Don'ts

Do's

- a) All moving parts should be cleaned and lubricated periodically.
- b) Air filter should be drained at regular intervals.
- c) Ensure that all gauges indicate correct reading.
- d) The silencer to be cleaned regularly.
- e) Ensure that the locking arrangements on the rims are always good.
- f) Ensure correct pressure for hub and tyre as recommended are maintained.
- g) Ensure that lock nut on rasp spindle is fastened every time.
- h) Reverse the blade 50% through its life.
- i) Cooling the blades can be done when temperature is high.
- j) Clean all dust that has accumulated on the Turn table shafts.
- k) Clean the buffing dust split over the Caster wheel tray every tyre by using Air blow gun.

Don'ts

- a) Don't apply grease or oil in the Expanding Hub Stem.
- b) Don't use blunt blades
- c) Don't operate the rasp when loading and unloading of tyre.
- d) Don't work on the machine without switching OFF mains
- e) When doing maintenance work don't over step on sensors
- f) Do not run the machine without oil in the gear box
- g) Do not release air by pulling the safety valve of the expandable rim to deflate the tyre
- h) Do not release the hub pressure suddenly when tyre is pressurized
- i) Do not operate the machine when buffing dust is spill over the machine.

5. Maintenance & Troubleshooting

Maintenance & Troubleshooting

Chapter Overview

Use information in this chapter to perform maintenance or troubleshooting Buffing Machine BF2E

This chapter contains the following information:

- Maintenance - describes typical Buffing machine maintenance procedures.
- Troubleshooting - explains how to troubleshoot the Buffing machine when problem occurs.

5. Maintenance & Troubleshooting / Maintenance

Maintenance

The Maintenance section includes the below:

- Disabling the Buffing Machine.
- Daily inspections.
- Cleaning Machine Parts.

Disabling the Buffing Machine

Before performing any maintenance on your Buffing Machine, be sure to completely disconnect the machine by disconnecting electrical and pneumatic energy source from the machine.

Daily inspections

Perform the following steps daily to keep your Buffing Machine in optimum operation condition. Except for the procedures described below, no other service is required or should be attempted.

<p>Caution</p> <p>Possible equipment damage</p>	<p>Operating the Buffing Machine without performing the daily check will lead to the possibility of machine parts getting damage or the life time of machine spare parts would reduce.</p>
--	--

- Check the Machine Control Panel is in closed condition.
- Check any loose parts in Machine Control Panel (control and indicators).

Cleaning of Machine Parts.

Perform the following steps daily to keep the Buffing Machine clean and healthy.

- Avoid keeping any unwanted objects / irrelevant material closer to the Buffing Machine
- Clean The Turn table shaft 2Nos. every day after completing production using soft clothes.
- Clean the machine with the help of clean cloth. If needed use cleaning agents like WD40 for removing stains.

5. Maintenance & Troubleshooting / Troubleshooting

Troubleshooting

Introduction

This section helps to isolate problems in electrical and pneumatics parts only. Problems in motor, Gear Box are outside the scope of this guide because they are not user-serviceable assemblies; do not attempt to repair them.

Contact Elgi authorized service person for repair/replacement information. For troubleshooting the Buffing Machine, it is necessary to understand the sequence of events that must happen before turning the machine ON and operate.

Before you attempt to perform any service, we advise you to read the entire documents, troubleshooting guide and review the connection layout diagram, electrical schematics and pneumatic schematics. Symptoms and possible causes are highlighted by dark print and bullet points throughout this document. Information about each symptom and cause can be found in following paragraphs.

Caution

Possible
equipment
damage

Attempting repair of Buffing Machine without the express authorization of Elgi Rubber Company Limited will void the product warranty.

If troubleshooting or service assistance is required, please contact Elgi Customer Service.



Danger

Serious
personal injury



Read and familiarize with all the instructions which is given in this manual.

Don't bypass any safety and Operating Instruction which is given this manual.

Use recommended PPE while troubleshooting the machine with electrical and pneumatic energy sources.

Failing of this will lead to serious personal injury.

5. Maintenance & Troubleshooting / Troubleshooting

Preventive Maintenance

Preventive Maintenance Program - Buffing Machine BF 2E																																			
Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Sign			
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September																																			
October																																			
November																																			
December																																			
Daily	<ul style="list-style-type: none"> Clean the Machine thoroughly. Drain the water from the filter at the inlet. Clean the turn table shaft. Check tyre inflation pressure is 1.4 kg/cm² Check expandable hub pressure is 7.2 kg/cm² Check the condition of buffing blades and reverse or replace if necessary Clean the cyclone filter bin after buffing every six to eight tyres. Lubricate the Screw rod assembly with graphite grease. Check stems in the hub and locks, replace if necessary. Lubricate rubber flap in expandable rim with concentrated Aqua lube. Check the Expanable hub mounting bolts and tighten if necessary. 											Weekly <ul style="list-style-type: none"> Check the oil level in the gear box Check the rasp drive belt tension to be 10 -15mm or replace with B-47 V-Belt if necessary. Clean and apply oil all pins and piston rods with SAE 40 oil. Check the pneumatic fittings and lines for any leak. 											Monthly <ul style="list-style-type: none"> Clean service the expandable hub assy. Check the expandable rim safety valve to operate at 2.2 kg/cm² Remove the slide frame cover and clean the dusts in Shaft and frame. Check the leakage's in pneumatic fittings Replace if required. <p style="text-align: center;">-----</p> <p style="text-align: center;">Note :</p> <p style="text-align: center;">Tyre Drive Gearbox Life cycle 18000 Running Hr If required changes Gear box oil Grade 320 Mineral oil.</p>												

5. Maintenance & Troubleshooting

Trouble Shooting

S.No	SYMPTOMS / PROBLEMS	POSSIBLE CAUSES	REMEDIES
1	Machine do not run when switched ON	<ol style="list-style-type: none"> 1. Incoming supply failure 2. Improper panel board connection 3. Failure of fuse 4. Emergency switch in locked position 	<ol style="list-style-type: none"> 1. Check incoming supply 2. Check and correct wiring as per circuit diagram 3. Check and replace fuse 4. Release emergency switch
2	Motor runs on continuous pressing of switch and stops when switch is released	<ol style="list-style-type: none"> 1. Contactor connection loose 2. Push button contact block connection loose 3. Push button contact block failure 	<ol style="list-style-type: none"> 1. Clean contactor terminals and tighten connections 2. Check and rectify 3. Replace contact block
3	Motor stops while running	<ol style="list-style-type: none"> 1. Motor over loaded 2. Wrong amperage setting 	<ol style="list-style-type: none"> 1. Check whether over loaded and correct 2. Reset relay amperage correctly and increase if needed within allowable limit
4	Motor rasp speed decrease while buffing	<ol style="list-style-type: none"> 1. 'V' belt loose 2. Excess depth of cut 3. Low voltage 	<ol style="list-style-type: none"> 1. Check belt tension. Correct or replace 2. Reduce depth of cut 3. Check and correct
5	'V' belt stretches frequently	<ol style="list-style-type: none"> 1. Belt drive misalignment 2. Wrong belts 3. Poor quality of 'V' belts 4. Pulleys damaged 	<ol style="list-style-type: none"> 1. Check and Correct 2. Use only B47 belts 3. Use only good quality belts 4. Replace pulleys
6	Rasp motors gets over heated	<ol style="list-style-type: none"> 1. 'V' belt too tight 2. Bearing failure 3. Blades blunt 4. Coil of motor weak 	<ol style="list-style-type: none"> 1. Correct belt tension 2. Change bearing, 3. Replace the blades 4. Check coil and rewind if needed
7	Motors make 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 Multi meter 2. Check Voltage
8	Machine vibrates while running	<ol style="list-style-type: none"> 1. Machine frame base not seated firmly on the ground 2. Unbalanced rasp head 3. Uneven tyre surface and heavy lugged tyres 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 even out. 5. Reduce depth of cut to 1mm or 2mm
9	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 (Grade 320 Mineral Oil) 2. Contact ELGI Tech support team For Gearbox Service or Replacement

10	Rasp head assembly blades are very loose and chipping off	<ol style="list-style-type: none"> 1. Improper setting of aluminum spacer in rasp head. 2. Tighten the lock out 	<ol style="list-style-type: none"> 1. Check and correct 2. Check and correct
11	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 joints and bin sealing 	<ol style="list-style-type: none"> 1. Empty the bin, Clean hose etc.. 2. Check and change the direction of motor. 3. Check and change the Gasket
12	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
13	Tyre gets buffed eccentrically (more on one shoulder than on the other)	<ol style="list-style-type: none"> 1. Centre line of rasp and centre line of tyre do not match. 2. Main shaft may have been shifted little to front or to back 3. Inner spacer of rasp head shifted 4. Alignment of gear box 5. Rim not seating on hub properly. 	<ol style="list-style-type: none"> 1. Center the rasp head assembly in line with the tyre 2. Loosen bolts retighten at correct position 3. Adjust the spacer for correct centering 4. Check and Correct 5. Check and Correct
14	Tyres get buffed eccentrically (excessive buffing on one point and less buffing on diametrically opposite point)	<ol style="list-style-type: none"> 1. Radial run out in Rim 	<ol style="list-style-type: none"> 1. Check and replace stem
15	Inflation pressure is not fully attained in tyre	<ol style="list-style-type: none"> 1. Air leakage in joints 2. Restricted air flow through air hose line 3. Air regulator not working 	<ol style="list-style-type: none"> 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.
16	Air leaks between bead and expandable rim flap	<ol style="list-style-type: none"> 1. Expandable hub pressure low 2. Wear in stems 	<ol style="list-style-type: none"> 1. Check air pressure in hub and correct 2. Check and replace worn out Stems
17	When main airline pressure is opened, air starts leaking continuously	<ol style="list-style-type: none"> 1. Insufficient incoming pressure. 2. Pilot valve failure. 	<ol style="list-style-type: none"> 3. Check and Correct 2. Check and correct
18	Jerky movement in the tyre lift	<ol style="list-style-type: none"> 1. Incoming line pressure faulty 2. Hose damaged 3. Seals damaged 4. Flow control valve damaged 	<ol style="list-style-type: none"> 1. Check and adjust air pressure 2. Check and replace 3. Check and replace 4. Check and replace

6. Technical Reference

Technical Reference

Chapter Overview

Information provided in this chapter is technical references of this Buffing Machine and will be useful in maintenance aspects for the technicians while troubleshooting.

This chapter contains the following information.

- Technical Overview - briefly describes the basic concept.
- Parts List
 - Exploded View
 - Ordering Information

6. Technical Reference / Technical Overview

Technical Overview

The Technical overview section includes the below:

- Key features.
- Machine working concept.

Key features

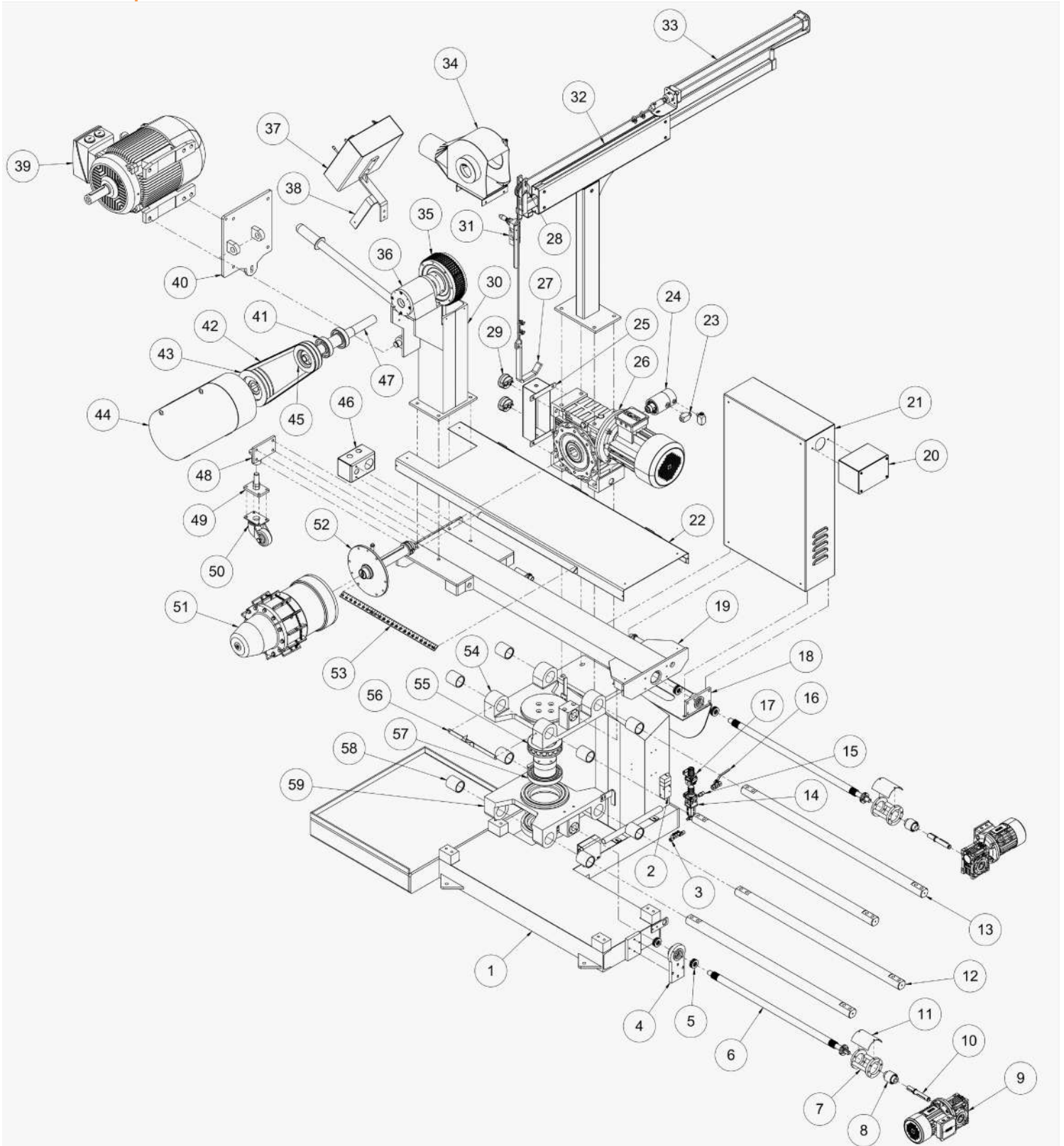
- This machine works with standard relay logic with all the necessary safety features required.
- This machine capable of buffing 13" to 35" Radius
- Motorized Radius and depth adjustments.

Machine working concept.

- Buffing Machine works with simple Compass arc principle. One point fixed and other point moving radial movement based on fixed point.
- Buffing Machine is designed remove all the old-worn tread on the tyre, and prepare the tire casing for the application of a new tread.
- A buffed tyre gives you a textured surface on the tyre casing and this gives proper adhesion with the new retread that you will later apply on this surface.

6. Technical Reference / Parts List

Exploded View



6. Technical Reference / Parts List

Order Information

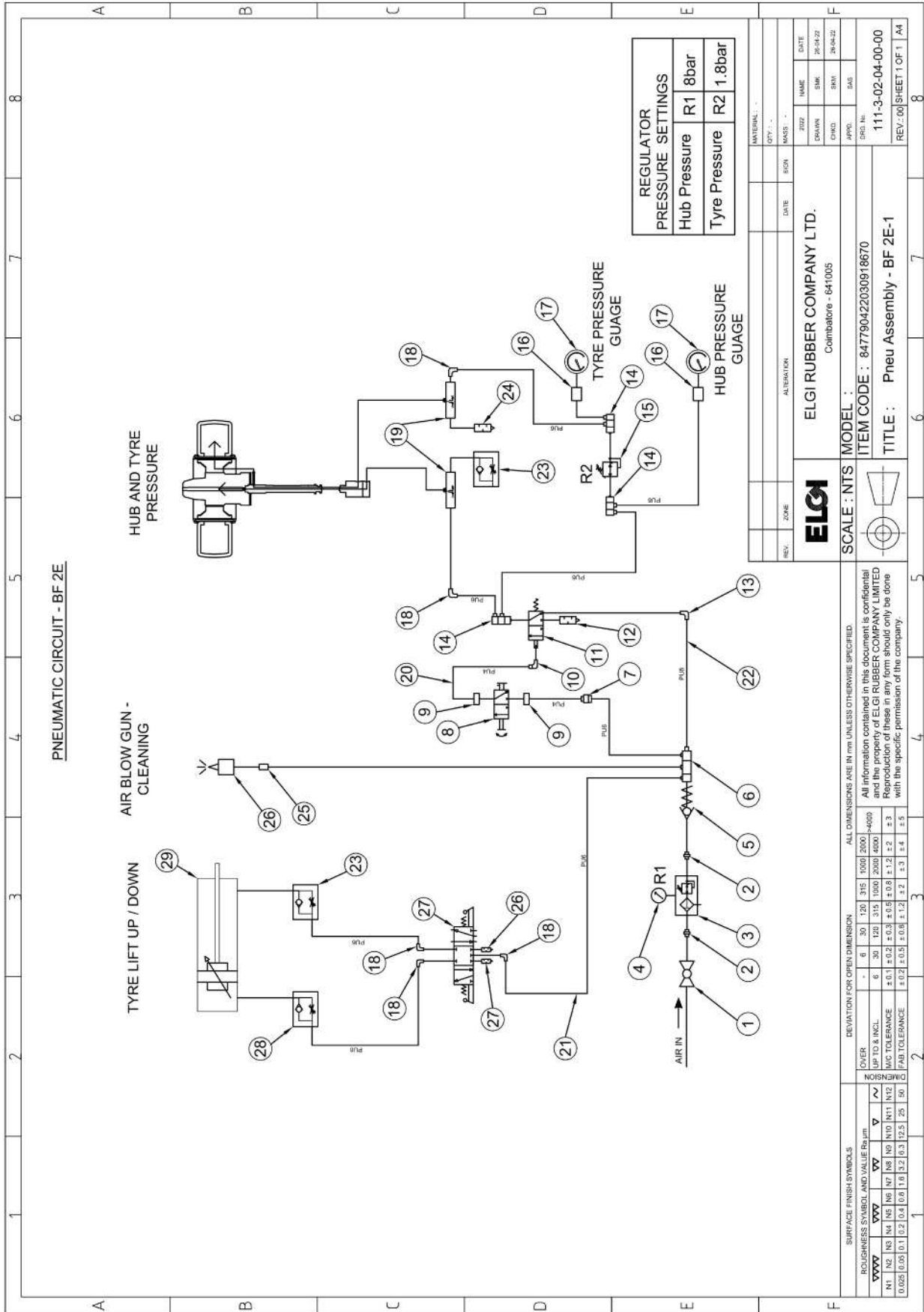
S.No.	ORDER CODE	DESCRIPTION	UOM	QTY
1	847790422180604770	Main Frame - BF 2E	NO	1
2	848180918302306109	Solenoid Valve -Pilot Operated-DS245ER61	NO	1
3	841290910230402036	Elbow - Swivel - WD211080651 - Multiple port	NO	1
4	847790422071504770	CF Screw Rod Mntg Brkt - BF 2E	NO	1
5	848250900121877510	Cyl Roller Brg -81220 TN -BCI	NO	4
6	847790422510283970	Screw Rod - BF 2 - Cross Feed	NO	2
7	847790422071494770	CF Screw Rod Motor Mntg Brkt - BF 2E	NO	2
8	401693931399030001	Gear - Coupling - M19	NO	2
9	850151915111371904	Motor - Geared - FL Mt - 1440 RPM-0.25 Hp	NO	2
9.1	848340900307118093	Gear Box Worm – 30:1 – TW40U30F63B5B3	NO	1
9.2	850151915111379804	Motor-FL Mt - 1440 RPM-0.25 Hp-TM63B4 B5	NO	1
10	847790422530024770	Single Output Shaft - BF 2E	NO	2
11	847790422230014570	Guard - BF 2E - Gear Coupling	NO	2
12	847790422530284770	Shaft Cross Feed - BF 2E	NO	2
13	847790422531544770	Shaft Turn Table - BF 2E	NO	2
14	841290930901024006	Air Filter Cum Regulator - 1/4" - FRC 136134	NO	1
15	741220917940020300	Nipple - Hex -Cone -Brass -1/4"	NO	2
16	848180902001023001	Valve - Ball - Brass - 1/4"	NO	1
17	842139911310201008	Regulator - Air - R13614 - 1/4"	NO	1
18	847790422071514770	TT Screw Rod Mntg Brkt - BF 2E	NO	1
19	847790422181334770	Slide Frame - BF 2E	NO	1
20	847790422590004770	Terminal Box - BF 2E	NO	1
21	853710902730225138	Panel-BF 2E-1 -415 V, 50/60 Hz /3 PH	NO	1
21.1	853649930306106182	Power Contactor -230 V -3TF3010-0AP0	NO	1
21.2	910700907501000054	Timer - Digital - 800 SQ-A -Select	NO	1
21.3	853620902510600518	MCB - 4 Pole - 63 A - 5TL-14630	NO	1
21.4	853610903405070502	Glass Fuse – F 0.5A L – 250V	NO	1
21.5	846693751299001501	NO Element - 240 V / 10 A - RB2 - BE - 101	NO	1
21.6	846693751299001401	NC Element - 240 V / 10 A - RB2 - BE - 102	NO	1
21.7	853641903622000117	Relay -Adapter-3UX1420	NO	1
21.8	853641903608021104	Relay -O/L -10 A - 16 A -3UA5200-2A	NO	1
21.9	853641903608036116	Relay - Over Load - 2.5 A - 4 A - 3UA5000-1E	NO	1
21.10	853641903608007112	Relay -O/L -0.63 A - 1 A -3UA5000-0J	NO	1
21.11	850421915401140003	Control Transformer - 130 VA-440 V	NO	1
21.12	843149903825023004	Joy Stick - ID-1-240 V-3A	NO	1
21.13	853641903608048031	Relay - Over Load - 4 A - 6.3 A - 3UA5000.1G	NO	1
21.14	903180907311001013	Proximity Sen - ID18-2008B	NO	1
21.15	853649930300104198	Contactor - Power - 230 V - 3TF3300-0AP0	NO	1
22	847790422141344770	Slide Frame Cover - BF 2E	NO	1
23	848140902010030009	Valve - Pressure Relief - Rapid - 1/4" - C185	NO	2
24	847790422131185770	Coupling - BF 5 - Rotary Seal	NO	1
24.1	848210900111432000	Deep Groove BB - 6007 RS	NO	2
24.2	401693904210301204	O-ring - 12 x 2 mm	NO	1
24.3	401693904210302009	O-ring - 19 x 3 mm	NO	1

6. Technical Reference / Parts List

24.4	401693904210304312	O-ring - 38 x 4 mm	NO	2
24.5	401693904321000057	Oil Seal - 25 x 35 x 10 mm	NO	1
25	847790422141584770	Cover - BF 2E - Pressure Gauge Mounting	NO	1
26	850151915111379911	Motor-FL Mt - 1440 RPM-2 Hp	NO	1
26.1	848340900307122094	Gear Box Worm – 40:1 - TW130U40F90B5B3	NO	1
26.2	850151915101371911	Motor - Flange Mount - 1440 RPM / 2 Hp - 1.5 KW - 415 V / 50 HZ / 3 Ph – TM90LA4 B	NO	1
27	847790422770014770	Hook - BF / BI 2E - Tyre Lift	NO	1
28	847790427540003770	Rope Roller - BI 2E	NO	1
28.1	848210900111055522	Deep Groove Ball Brg -6000 /ZZ	NO	10
28.2	681299930528000035	Wire Rope - MS - 5D	M	2
28.3	731815900606015062	Wire Rope -U Bolt -MS -1/4"	NO	4
29	902620907805030315	Pr.Gau -Pan Mtg-2-1/2"x1/4" (0-10 Bar)	NO	2
30	847790422440234770	Rasp Column - BF 2E	NO	1
31	848180902007062404	Valve - Hand Lever - DS265HC61	NO	1
32	847790422030514770	Tyre Lift Frame Assy - BF 2E	NO	1
33	841231909321007018	Pneumatic Cylinder - A12 050 700	NO	1
33.1	401693909399010163	SI Kit-SK 0003	NO	1
34	847790422440504770	Rasp Hood - BF 2E	NO	1
35	847790422031040170	Assembly - BF - Rasp Head Jet Hub	NO	1
36	847790422260124770	Housing - BF 2E - Bearing with End Cover	NO	1
37	847790422790014770	Box - BF 2E - Operator Pan	NO	1
38	847790422071484770	Belt Guard Mtng Brkt - BF 2E	NO	1
39	850151915112002718	Motor - AC - Foot Mount - 2880 RPM / 15 Hp - 160F/NM	NO	1
40	847790422390724670	Plate - BF 2B - Motor Mount	NO	1
41	848210900111129522	Deep Groove Ball Brg -6308 /ZZ	NO	2
42	401012916731214068	V Belt - Type B50 - 17 x 11 x 1310 mm	NO	2
43	848350916899101041	Pulley Taperlock - 2B x 160 x 2517 x 42 - 3.3 mm	NO	1
44	847790422230164570	Belt Guard - BF 2E	NO	1
45	848350916899101051	Pulley Taperlock - 2B x 125 x 1610 x 28 - 3.3 mm - BF4	NO	1
46	847790422590014770	Terminal Box - BF 2E - CF Motor	NO	1
47	847790422441375760	Rasp - BF 5 - Spindle	NO	1
48	847790422070014770	Bracket - BF 2E - Slide Table Caster Wheel	NO	1
49	847790422390024870	Plate - BF 2E - Caster Wheel Mounting	NO	1
50	830220932007141061	Caster Wheel -Nylon -Swivel -3"x1-1/2"	NO	1
51	847790136100150111	Expanding Hub EH 5-1	NO	1
51.1	847790437110000170	Seal Kit - EH 5	NO	1
51.2	847790436280453471	Stem - EH 5 - Without Lock	NO	6
51.3	847790436280423470	Stem -EH 5 -W Lock	NO	6
52	847790422530604770	Main Shaft - BF 2E	NO	1
53	847790422430005170	Radius Scale - BF 4	NO	1
54	847790422490024770	Saddle - BF 2E - Top Turn Table	NO	1
55	848250900121877510	Cyl Roller Brg -81220 TN	NO	1
56	847790422400014770	Pointer - BF 2E - Radius Scale	NO	1
57	848210900111075522	Deep Groove Ball Brg -6020 /ZZ	NO	1
58	847790422101809560	Bush -BF 2-D -TT Gui Shft -55ODx45IDx60L	NO	8
59	847790422490014770	Saddle - BF 2E - Bottom Turn Table	NO	1

6. Technical Reference / Circuit Diagram

Pneumatic Circuit Diagram

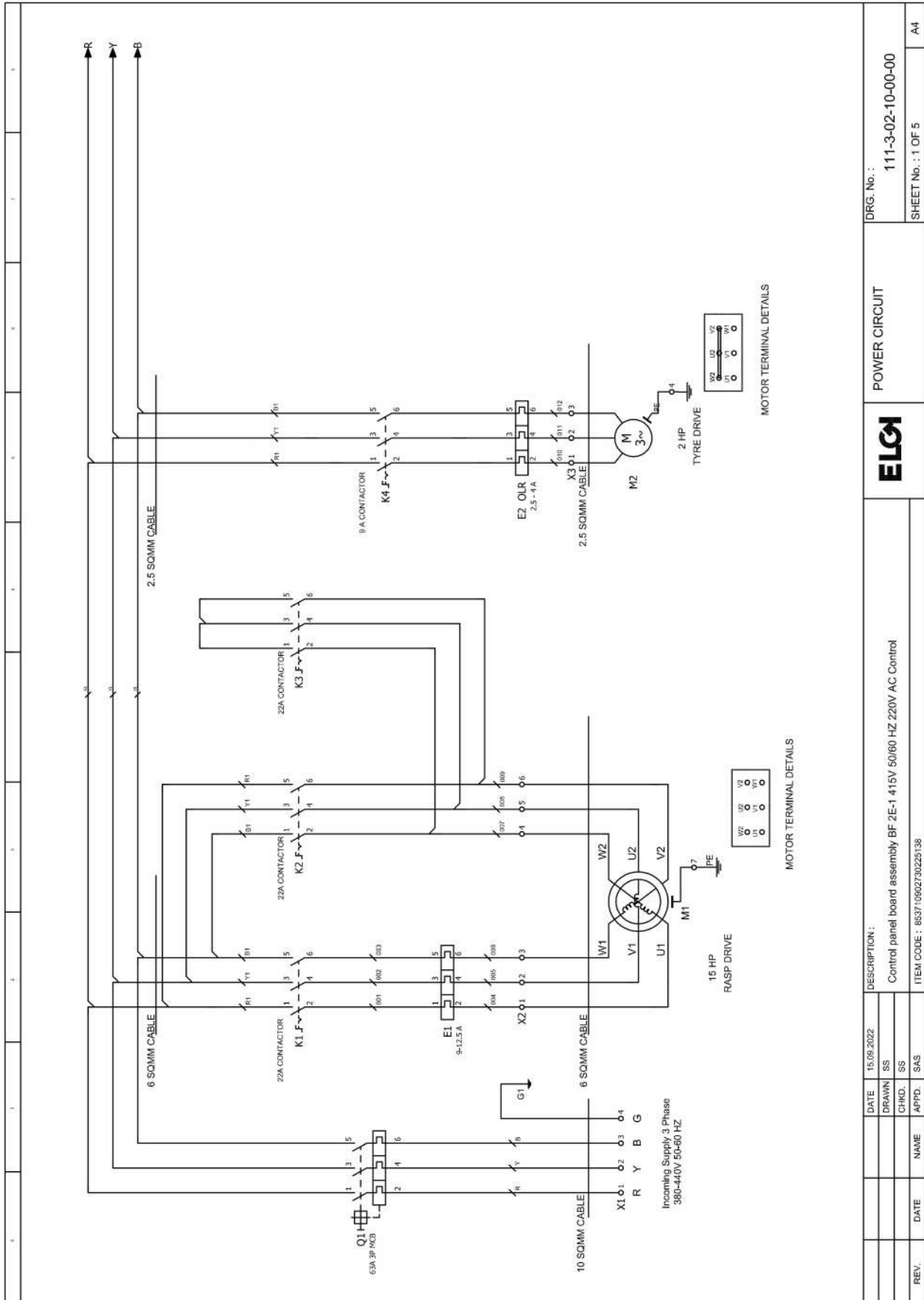


6. Technical Reference / Circuit Diagram

PARTS LIST - PNEUMATIC ITEMS				
S.No.	ORDER CODE	DESCRIPTION	UOM	QTY
1	848180902001023001	Valve - Ball - Brass - 1/4"	NO	1
2	741220917940020300	Nipple - Hex -Cone -Brass -1/4"	NO	2
3	841290930901024006	Air Filter Cum Regulator - 1/4" - FRC 136134	NO	1
4	902620907821510015	Pr.Gauge-42 mm(0-10 Bar)-A2G02	NO	1
5	848130902008000001	Valve - Non-Return - 1/4" - GV 161	NO	1
6	841290910230402036	Elbow - Swivel - WD211080651 - Multiple port	NO	1
7	848790911620102004	Straight Union -WP2140406	NO	1
8	848180902201070101	Actuator - Selector - Black -DP242P70-LH3A	NO	1
9	848790910221251037	Male Elbow - WP2210470	NO	2
10	841290910230201029	Swivel Elbow - WS0110450	NO	1
11	848180918302306109	Solenoid Valve -Pilot Operated-DS245ER61	NO	1
12	841290911010202020	Silencer - Button - 1/4" - ASB0161	NO	1
13	848790910220402017	Elbow - Male - WP2210851	NO	1
14	841290910230302035	Elbow - Swivel - WS0120651 - 2 Port	NO	3
15	842139911310201008	Regulator - Air - R13614 - 1/4"	NO	1
16	841290910210302013	Elbow Female 6D X 1/4"-WP2220661	NO	2
17	902620907805030315	Pr.Gau -Pan Mtg-2-1/2"x1/4" (0-10 Bar)	NO	2
18	848790910220302015	Elbow - Male - 6 mm D x 1/4" - WP2210651	NO	5
19	848140902010030009	Valve - Pressure Relief - Rapid - 1/4" - C185	NO	2
20	391729901902092041	Polyurethane Tubing - WH00B04	M	15
21	391729901902092021	Polyurethane Tubing - WH00B06	M	10
22	391729901902092022	Polyurethane Tubing - WH00B08	M	0.5
23	848180902005109308	Valve - Flow Control - 6D x 1/4" - GR5105106	NO	2
24	841290911010202008	Silencer - 1/4" - ASC0161	NO	1
25	848790909810302011	Male Connector -WP2110651	NO	1
26	846789170160010101	Air Blow Gun - 1/4" - WB101 - 8 Bar	NO	1
27	841290911010201019	Silencer - Button - 1/8" - ASB0160	NO	2
28	848180902007062404	Valve - Hand Lever - 1/4" - DS265HC61	NO	1
29	848180902005122301	Valve - Flow Control - 6D x 1/4" - GR1105106	NO	1
30	841231909321007018	Pneumatic Cylinder - A12 050 700	NO	1
30.1	401693909399010163	SI Kit-SK 0003	NO	1
31	841239904208050221	Regulator Clamp – A2C01	NO	2

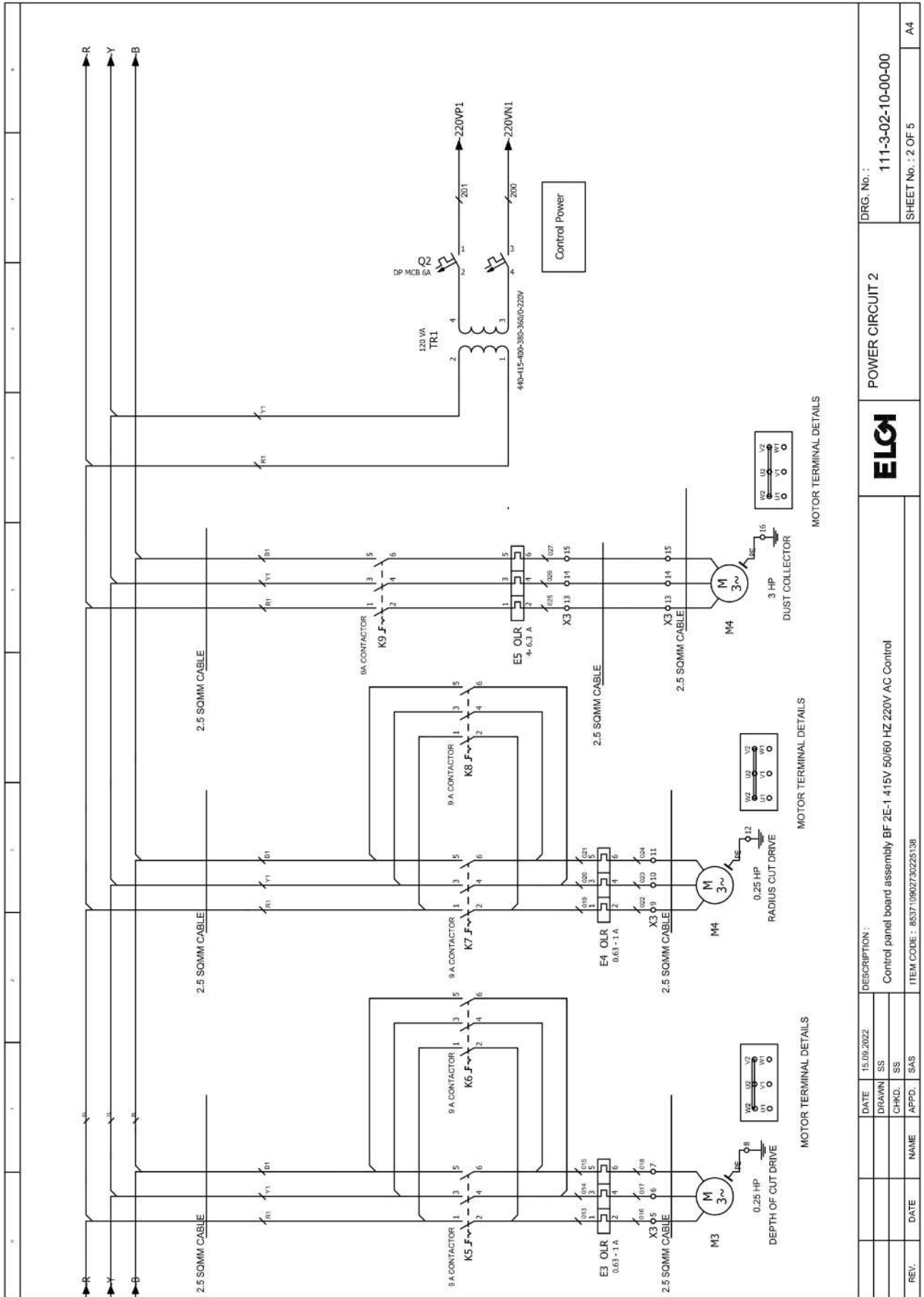
6. Technical Reference / Circuit Diagram

Electrical Circuit Diagram



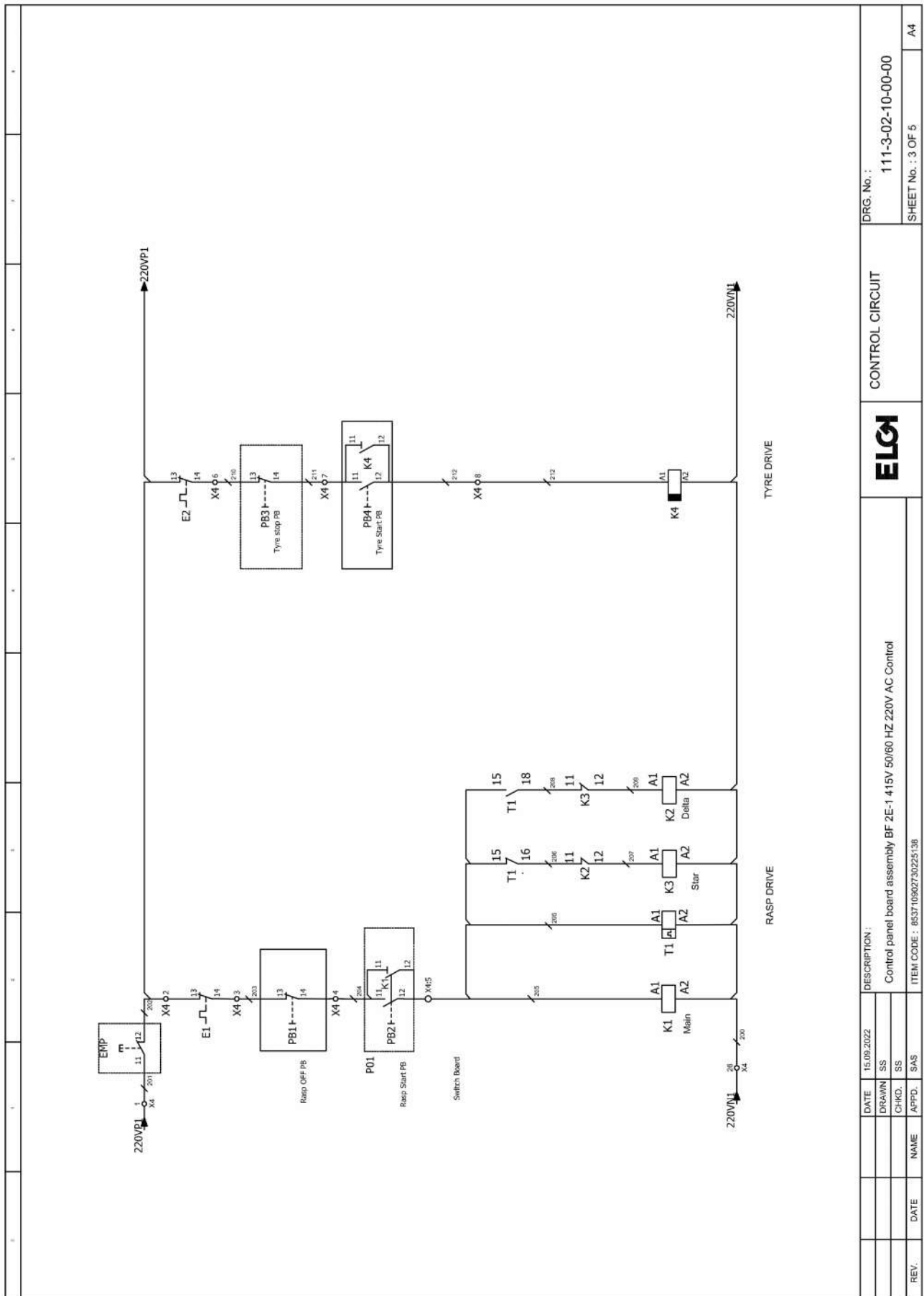
REV.	DATE	NAME	SAS	APPD.	SAS	DESCRIPTION :	CONTROL panel board assembly BF 2E-1 415V 50/60 HZ 220V AC Control	POWER CIRCUIT	ELGI	DRG. No. :	111-3-02-10-00-00	A4
						DATE	15.09.2022					
						DRAWN	SS					
						CHKD.	SS					
						APPD.	SAS					
						ITEM CODE :	86371060273023138					

6. Technical Reference / Circuit Diagram



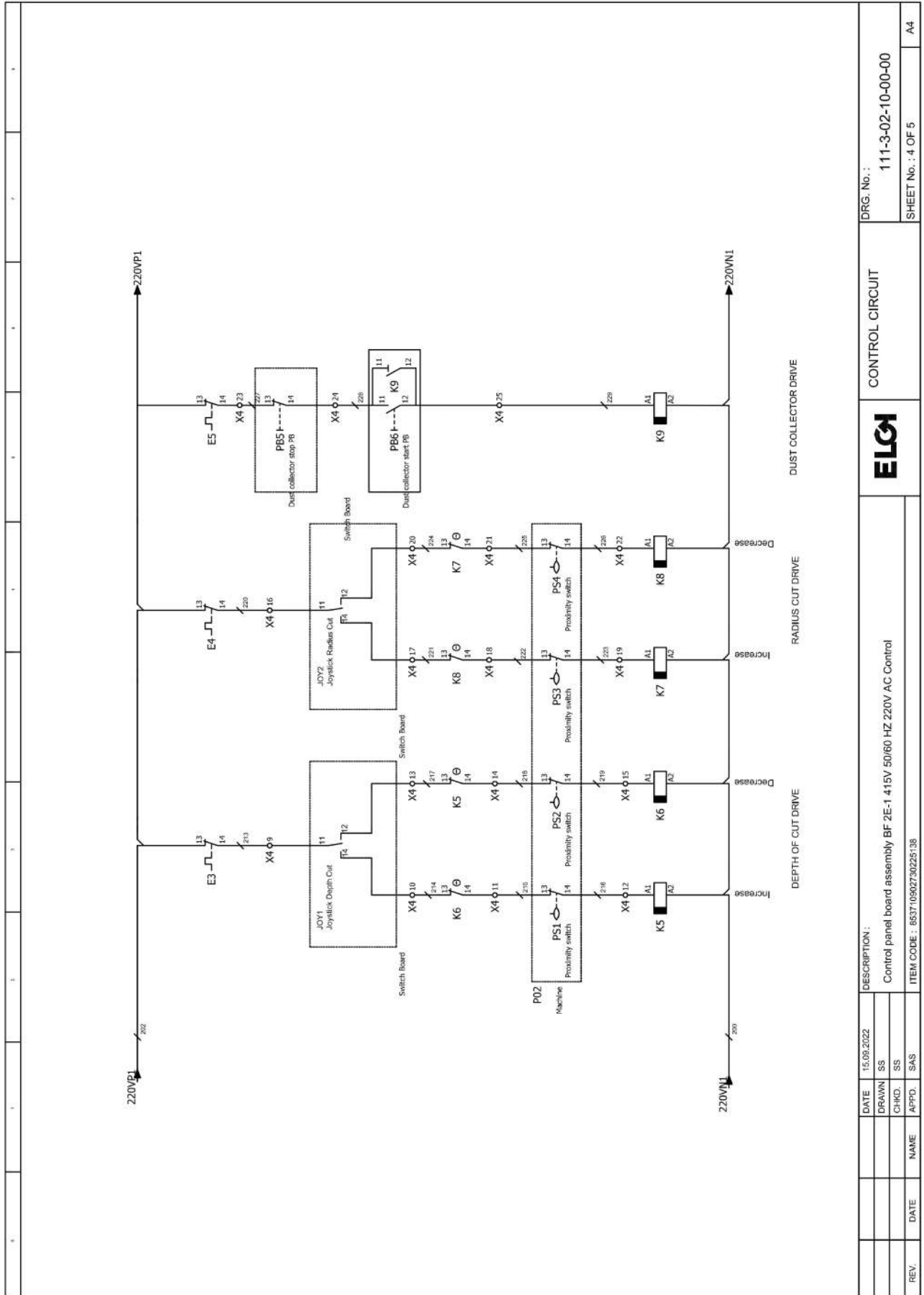
REVISIONS		DESCRIPTION :		POWER CIRCUIT 2		DRG. No. :	
REV.	DATE	NAME	APPD.	SAS	Control panel board assembly BF 2E-1 415V 50/60 HZ 220V AC Control		111-3-02-10-00-00
					Control panel board assembly BF 2E-1 415V 50/60 HZ 220V AC Control		SHEET No. : 2 OF 5
					Control panel board assembly BF 2E-1 415V 50/60 HZ 220V AC Control		A4

6. Technical Reference / Circuit Diagram



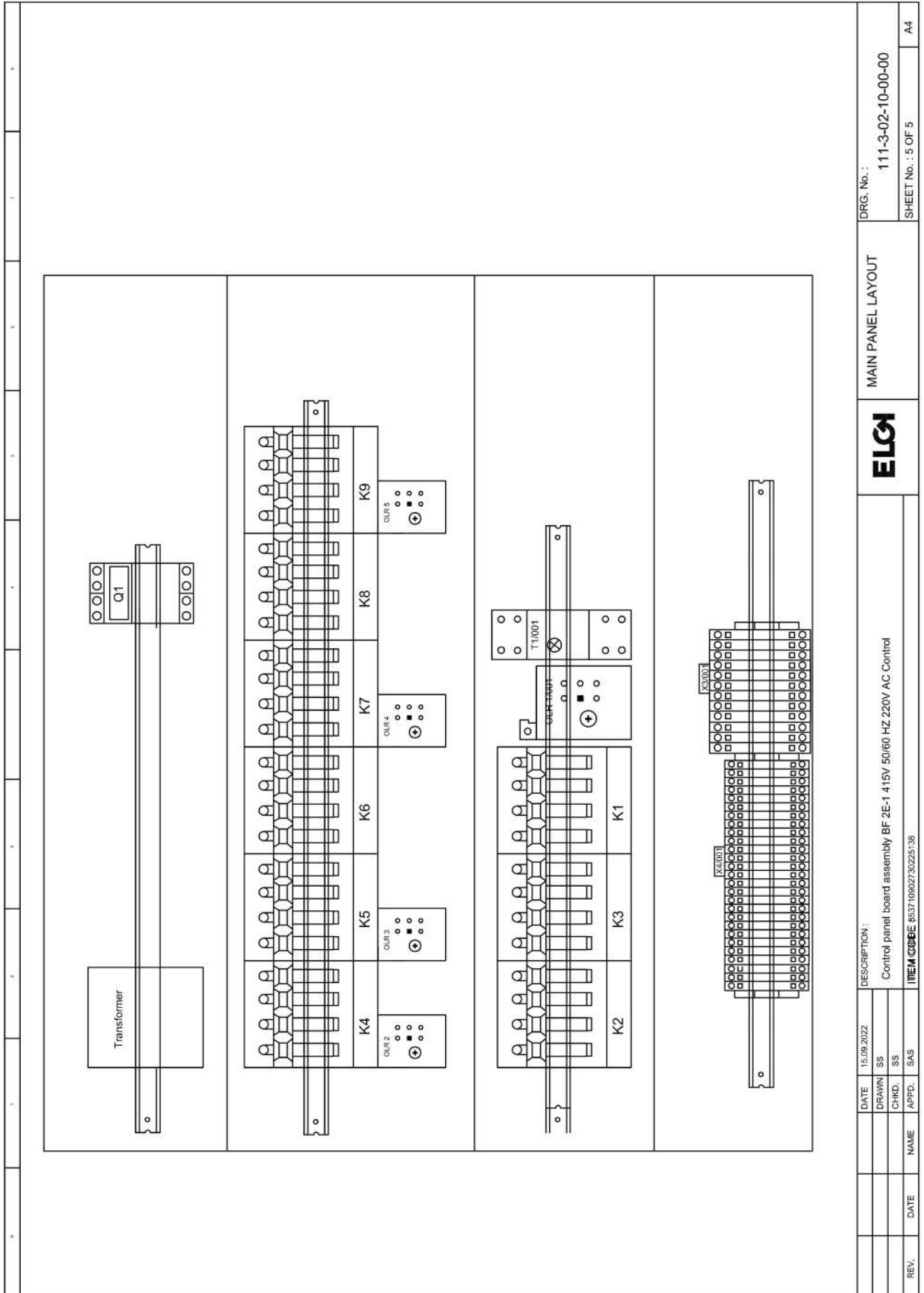
DATE		15.09.2022	DESCRIPTION :		CONTROL CIRCUIT	DRG. No. : 111-3-02-10-00-00
REV.	DATE	NAME	APPD.	SAS		
						A4

6. Technical Reference / Circuit Diagram



DATE	15.06.2022	DESCRIPTION :	CONTROL CIRCUIT	DRG. No. :	111-3-02-10-00-00
DRAWN	SS	Control panel board assembly BF 2E-1 415V 50/60 HZ 220V AC Control	ELGI	SHEET No. :	4 OF 5
CHKD.	SS	ITEM CODE : 853710902730225138		A4	
REV.	DATE	NAME	APPD.	SAS	

6. Technical Reference / Circuit Diagram



REV.	DATE	NAME	APPD.	DATE	DESCRIPTION :	ITEM CODE	DRG. No. :
	15.09.2022	SS	SS		Control panel board assembly BF 2E-1 415V 50/60 HZ 220V AC Control	853710602730225138	111-3-02-10-00-00
							SHEET No. : 5 OF 5

MAIN PANEL LAYOUT



A4

ELGI Retreading Machinery - Model Plant

