BROBO GROUP©

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AUSTRALIAN MADE AND OWNED

Certified System Quality ISO 9001

PRODUCT AND MAINTENANCE MANUAL
PEDESTAL GRINDER
PG350

OPERATING MANUAL FOR BROBO GROUP PEDESTAL GRINDERS PG350

TECHNICAL SPECIFICATION

MACHINE SPECIFICATION	MOTOR RATING (kW / HP / V / PH)	DESCRIPTION	WHEEL SPEED
PG350 (3220020)	2.4kW / 2.9HP	Pedestal Grinder	1770/2070 RPM

Packaged Dimensions

114cm x 114cm x 130cm

Weight

PG350 255 kg

CHAPTER 1 - Installation of the Machine

1.1. Unpacking & Handling the Machine

Upon receiving the ***Brobo Group*** ***PEDESTAL GRINDERS PG350***, the machine should be standing upright & positioned centrally on top of a wooden pallet.

Carefully remove the packaging surrounding the pedestal grinder. Position the grinder to the desired location, ensuring that a power outlet is available and within reach of the grinder power cord. Loosen the base bolts restraining the grinder and sling a harness around the body of the unit while being mindful that equal weight distribution is required to prevent it from tipping. Raise the pedestal grinder, slide the pallet away from the machine and re-lower the grinder to the final location.

Prior to powering up the grinder, place the desired wheel/buff mop onto the machine spindles. Note that if the bore sizes on the grinding wheels and/or buffering mops do not fit the spindle, taper adapters and buff adapters are readily available for purchase from most hardware and tool outlets.

Once the wheels/buffs are securely fastened to the machine, connect the grinder to the mains electrical supply and power up the machine.

FIGURE 1. *Shipping of grinder unit*

1.2. Minimum Requirements

For the machine to function correctly, the room in which the grinder unit is to be installed must be in the vicinity of, & satisfy the following conditions:

- *240/415V Power Supply*
- *Working Pressure - Not less than 600kPa (6 Bar) & no greater than 900kPa (9 Bar)*
- *Ambient Temperature - From -10℃ to +50℃.*
- *Relative Humidity: Not more than 90%.*
- *Lighting: More than 500 LUX.*

WARNING – OPERATING VOLTAGE VARIATION

Each grinder model has an inbuilt safety system to protect it against voltage variations. However, for the machine to perform efficiently, ensure that the grinder unit operates within ±10% limits of the recommended voltage of the motor.

1.3. Anchoring the grinder unit

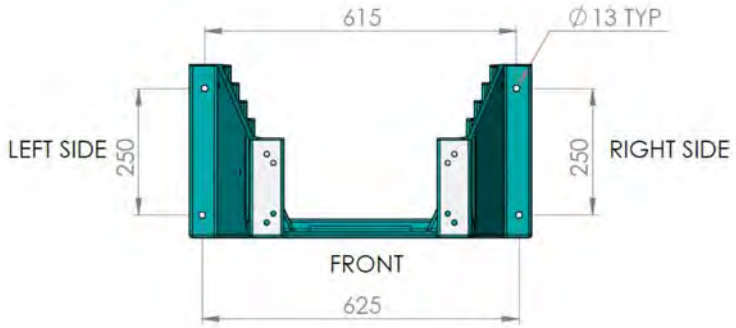

Figure 2. *Anchoring the grinder unit (Top View)*

1.4. Connection to Power Source

Before connecting the machine to the power supply, check that the socket is not connected in series with other machines. This condition is critical for the ideal operation of the grinder unit.

Single & Three Phase

a) **Single phase machines** are provided with three pins, **15 amps** rated plugs & leads for connection to **240V**, **50Hz** power supply in **Australia**.

Active = Brown
Neutral = Light Blue
Earth = Green/Yellow

VOLTAGE
240V/1 PH

MAIN VOLTAGE
240V

Figure 3.1 *Connection 3 pins – 1 Phase*

b) **Three phase machines** should be fitted with a suitable, approved **four pin plugs** (i.e. three phase & earthing - **not provided**)

Active = Brown, White. Dark Blue
Earth = Green/Yellow

VOLTAGE
415V/3PH

MAIN VOLTAGE
415V/3PH

Figure 3.2 *Connection for "4-CORE" Wire System with Neutral – 3 Phase*

c) Check the power supplied & motor specifications before plugging in the machine. Check the terminal connection on dual voltage motor terminal box & connect it accordingly to the corresponding voltage supply.

d) If the dual motor is requested, the motor is **always** connected to the higher voltage, unless otherwise specified prior to the order being placed.

CHAPTER 2 - Safety & Accident Prevention

The ***Brobo Group*** ***PEDESTAL GRINDERS PG350*** has been designed & manufactured in accordance with **Australian Standards**. It is ***HIGHLY RECOMMENDED*** that the instructions & warnings contained in this chapter be carefully followed for correct usage of the machine.

2.1. Operation of the Machine

This machine is specifically designed for grinding of various ferrous metal sections. Our company has no responsibility for any damages & risks caused as the result of changing & addition on the machine or removing any part of the machine.

This machine involves a high-speed revolution; therefore extreme caution is required when operating the device.

The employer is responsible for instructing the personnel who, in turn, are obliged to inform the operator of any accident risks, safety devices, noise emission & accident prevention regulations provided for by national & international laws governing the use of the machine. ***The operator must be fully aware of the position & functions of all the machine's controls.***

All those concerned must strictly adhere to ALL instructions, warnings, & accident prevention standards in this manual.

The following definitions are those provided for by the ***EEC DIRECTIVE ON MACHINERY No. 98/37/CE***:

- **Danger Zone -** any zone in and/or around a machine in which the presence of a person constitutes a risk to the safety & health of that person.
- **Person Exposed** - any person finding him or herself, either completely or partly in a danger zone.
- **Operator** - the person or persons are given the responsibility of installing, operating, adjusting, maintaining, cleaning, repairing, & transporting the machine.

WARNING – UNAUTHORISED MODIFICATIONS/REPLACEMENTS/USE

The manufacturer declines any responsibility whatsoever, either civil of criminal, in the case of unauthorised interference or replacement of one or more parts or assemblies on the machine, or if accessories, tools & consumable materials used are different from those recommended by the manufacturer, or if the machine is inserted in a plant system & its proper function is altered.

2.1.1. Noise Level

The noise level of an idling grinder has been measured to be ***below 85 dBA***. This complies with the ***Australian Occupational Health & Safety (Noise) Regulations 1992***.

Please note that peak impulse noise levels will be experienced due to variables including blade characteristics, type, & condition. This will also vary accordingly depending on the size & type of sample being ground. Under these circumstances, management should make available to the operator(s) the appropriate hearing protection equipment as prescribed under the above-stated act.

2.1.2. Power Supply

The 240/415V power supply requirements for this machine are of a high level & unauthorized interference & or inadequate maintenance could result in a situation that could put the operator at risk. A ***qualified*** electrical engineer should always be assigned to maintain & repair the system.

2.2. General Requirements

2.2.1. Lighting

Insufficient lighting during the operation of the unit would constitute a safety hazard for the people concerned. For this reason, the user of the machine must provide adequate lighting in the working area to eliminate areas of shadow, whilst also prevent dazzling illumination sources
(Reference standard ***ISO 8995 - 2002 'Lighting of Indoor Workplaces'***).

2.2.2. Connection

Check that the power supply cables, compressed air supply (if applicable) & coolant system complies with, & are operating within the acceptable range of the grinder capabilities.
Faulty, damaged or worn components must be replaced immediately.

2.2.3. Earthing Systems

The installation of the earthing system must comply with the requirements stated in the:
IEC Standards Part 195: Earthing & Protection Against Electric Shocks 1998.

2.3. Advice for the Operator

MANUALS
The operation & maintenance manuals should be delivered to the responsible & in charge persons.

DELIVERY

Check the machines when they arrive at your premises. If you determine any damage occurred during the transportation, apply & fulfill the related agreement conditions. Please contact ***Brobo Group*** for changing the damaged parts & for ordering the new parts. Only use original spare parts for maintenance & repairing.

STORING

The machine should be used in a closed area & in a dry environment. It must not be used in the environments have the risks of explosion.

INSTALLATION & STARTING

The installation & starting of the machine must be done by the experienced staff. The instructions must be observed during all procedures.

PRECAUTIONS AGAINST ACCIDENTS

Comply with all instructions on the manuals for preventing accidents. The machines comply with international standards ISO 9001

MAINTENANCE & CLEANING

The maintenance & cleaning should be done by the qualified person.

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The copy or simulation of our machines or some parts is not allowed without written permission from us.

WARRANTY

The warranty is applied according to the conditions of the agreement. The breakdowns caused using foreign spare parts supplied out of our company will be out of our warranty terms. Our company will have no responsibility for the reason of the instructions do not comply or the wrong operation of non-capable staff.

Read the instruction manual before operating the Grinder
Keep the User Manual in a place just beside the machine where it is easily found.
Keep always the labels clean & in good condition

Protective eyewear or goggles must be worn at all times while attending & operating the grinder.

Do not attempt to operate the machine unless all safety guards are in operation.

Ensure that ***hands & arms are kept clear of the grinding zone*** when the machine is operating.

Do not wear loose clothing with long sleeves & oversized gloves, bracelets, necklaces or any other loose object that may become entangled in the machine's wheel during grinding. Long hair must be tied back or placed in a hair net.

Always disconnect the power supply to the machine before carrying out any maintenance work or adjustments. This includes cases of abnormal operations of the machine.

The operator ***MUST NOT*** conduct any risky operations or those not required for the grinding in course.
Never move the grinder while the machine is operating.

Always keep the workplace are as clean as possible.
Remove equipment, tools or any other objects from the grinding zone.

Support the workpiece to prevent it falling or jamming during the grinding cycle.

If the wheel jams during a grinding, activate the emergency stop function immediately

Always turn off the machine before carrying out any repair work. Consult the Brobo Group Engineering Department in the country in which the machine was initially purchased.

2.4. Machine Safety Devices

This product & maintenance manual is not purely intended as a guide for the usage, operation, & maintenance of the grinder unit in a strict production environment; it is instead an instrument to providing information on how to use the machine correctly & safely. The following standards listed in section *2.4.1*, which are applicable to the ***Brobo Group PEDESTAL GRINDERS PG350***, are those specified by the EEC Committee that governs the safety of machinery, health & safety at work, personal protection & safeguarding of the work environment. In addition, the grinder also complies with the Australian Standards regarding the safeguarding & general requirements for electrical equipment.

2.4.1. Reference Standards

MACHINE SAFETY

- *EEC Directive No. 98/37/CE - Machines Directive*
- *EEC Directive No. 91/368 - 94/68 - Amends sections of EEC Directive No. 98/37/CE relating to machine safety*
- *EEC Directive No. 73/23 - Low Voltage Directive*
- *AS4024.1 - 1996 - Safeguarding of Machinery*

HEALTH & SAFETY AT WORK

- *AS3100 - 2002 - General Requirements for Electrical Equipment*
- *OH. & S. 1995.81/1995 - Compliance References*
- *EEC Directive No. 80/1107; 83/477; 86/188; 88/188; 88/642 - Protection of workers against risks caused by exposure to physical, chemical & biological agents in the workplace*
- *EEC Directive No. 73/23 & Special EEC Directives No. 89/654; 89/655 - Improvements in health & safety at work*

CHAPTER 3 - Main Functions & Operation of the Machine

1. Motor
2. Safety Eye Shields
3. Grinding Wheel
4. Toolrest
5. Emergency Stop Button
6. Water Pot

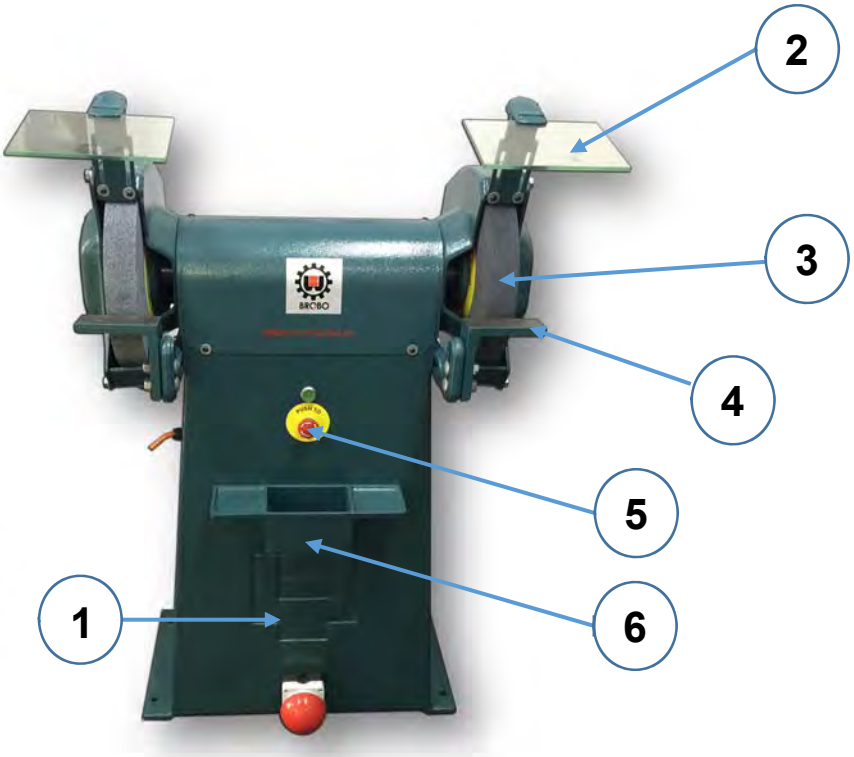


Figure 4. *Pedestal Grinder Main Components*

3.1.1. Motor

Available in 3 phases 415 volts, the 2.4KW motor is the heart of the grinder unit that produces 2070 rpm toward the spindles & is operating at suitable speeds for grinding & buffing applications.

3.1.2. Safety Eye Shields

The reinforced glass safety eye shield serves to protect the user from any debris & particles that might be dislodged from the grinding/buffing process. The bracket mountings also allow the user to adjust the position of the eye shield to suit various workpiece.

3.1.3. Grinding Wheel

Rated at A24/46 Grit, the general purpose grinding wheels are provided on all Brobo pedestal grinding machines. It is advisable for all operators that grinding/buffing wheels are available for purchase for various applications from reputable hardware stores. Also note that tapered buff & wire adaptors are available for purchase from Brobo, sold separately.

3.1.4. Toolrest

As implied, the Toolrest provides a stable platform in which the user can rest any tool piece for resharpening. The height & position of the Toolrest can be moved accordingly via the adjustable bolts provided.

3.1.5. Emergency Stop Button

In compliance with Australian Standards & ISO 9001, all Brobo grinding/buffing machines are now provided with emergency STOP button for ease of access during an emergency.

3.1.6. Water Pot

Conveniently located to the machine, water, water-based or oil based lubricants can be placed in the water pot in which the operator can intermittently dip the workpiece in to cool the grinding surface down. Careful note that tools or heavy objects should not be rested in or on the water pot for safety concerns that it might be obstructing the user's access to the emergency stop button

3.2. Preparation for Operation

The following procedure is recommended for the correct grinding using ***Brobo Group PEDESTAL GRINDERS PG350***

PROCEDURE

1) Clean the workpiece to ensure it is free of any grit, swarf or flammable substances. It is highly recommended that a solvent is used to remove any residue while ensuring the solvent is inflammable & non-toxic.

2) Prior to grinding/buffing, clear the work area around the workpiece of any sizeable items & tools to minimize the likelihood of the user getting injured during the grinding operation.

3) Using the Toolrest as a guide, rest the workpiece on the Toolrest & maneuver it to the desired grinding position.

4) Check that the safety eye shield is directly positioned to deflect swarf & any dislodged particles.

5) Turn the machine on. Proceed by slowly easing the workpiece into the grinding wheel. Apply a steady, even pressure & feed downward towards the wheel. During grinding, use a traversing motion across the face of the grinding wheel up to within the edge of the wheel. Take care not to round off the grinding wheel edges. Do not grind in the one spot on the wheel as this will damage the wheel. Good grinding practice preserves the shape of the grinding wheel face & reduces the inconvenience & frequency of dressing the grinding wheel.

6) Once completed, turn the machine off by depressing the stop button.

3.3. Operation Recommendations

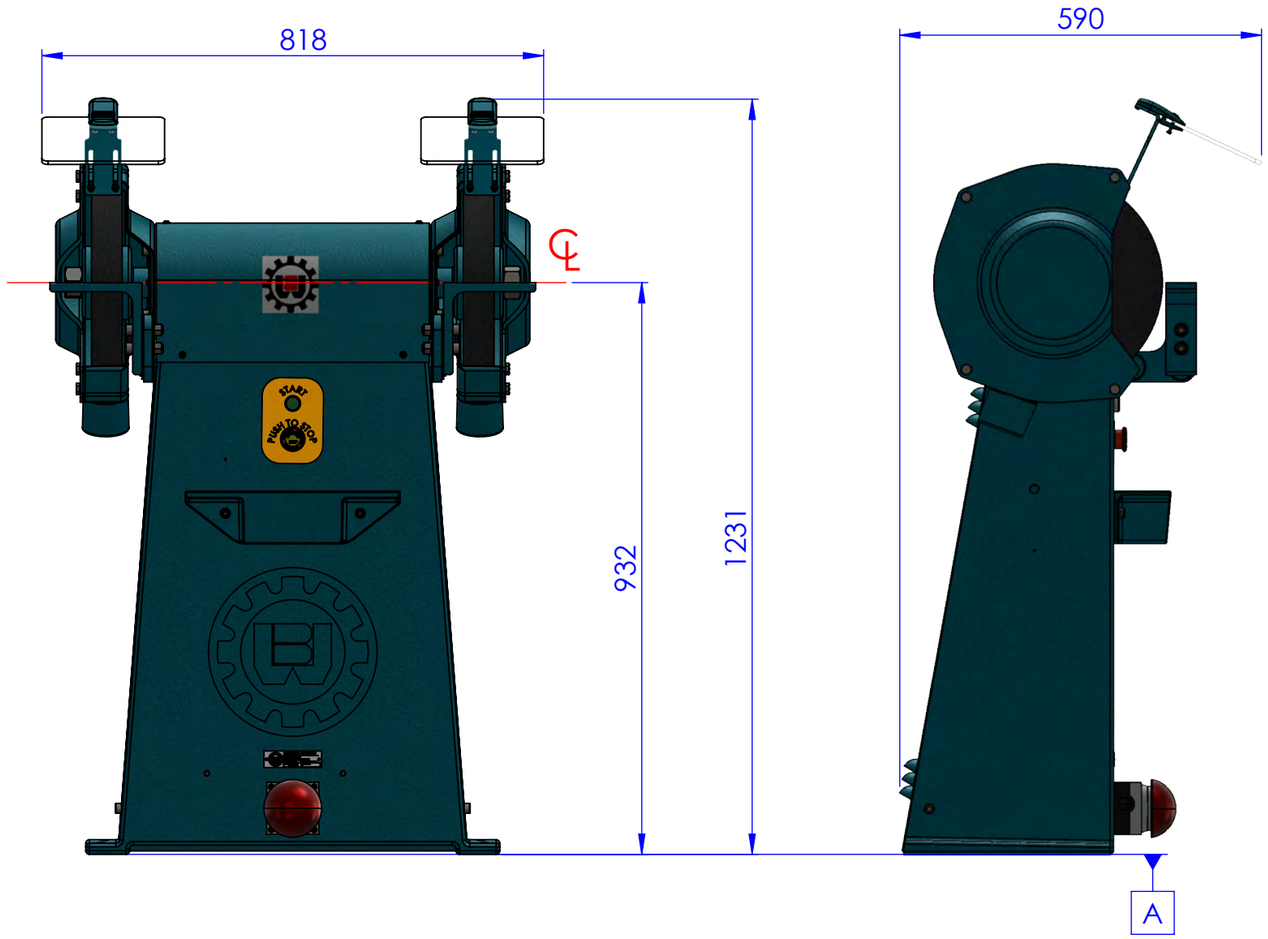
- To reduce the amount of frictional heat generated between the grinding wheel & workpiece, a light coating of oil or lubricant can be applied to the workpiece periodically.
- Do not force the workpiece to the grinding/buffing as this not only significantly reduces the lifespan of the wheel, the workpiece could recoil sharply backward & injure the operator.
- Adjusting Toolrest: 3mm clearance between Toolrest & wheel face, Align Toolrest above the spindle Centreline

CHAPTER 4 - Drawings, Layouts, Assembly & Spare Parts

4.1. Spare Parts

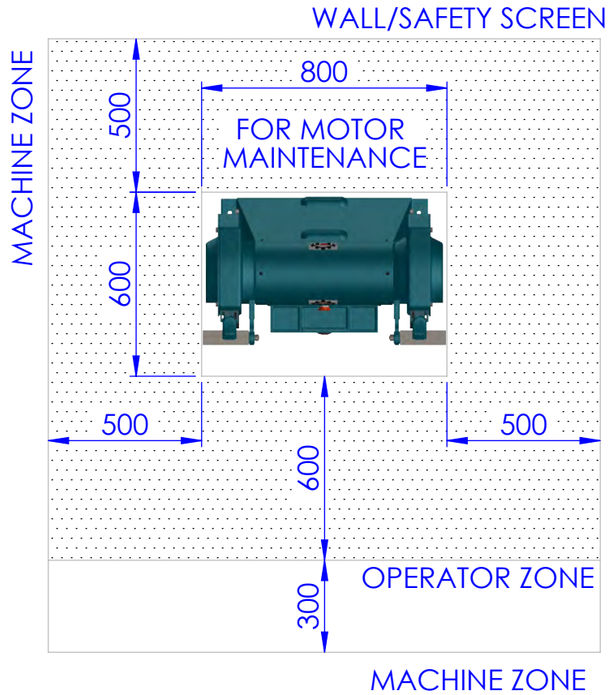
Most common replace spare parts:

ITEM	PART NUMBER	DESCRIPTION
PG350	3212030	TOOREST ARM
	3212040	TOOLREST
	3212050	INNER FLANGE
	3214440	OUTER FLANGE
	3225170	BELT DRIVE
	3211100	INNER GUARD RH
	3211110	INNER GUARD LH
	3215040	GRINDING WHEEL 350x50x31.75 A46
	3215050	GRINDING WHEEL 350x50x31.75 A26
	3215160	REDUCER BUSH 50.8mm - 31.75mm

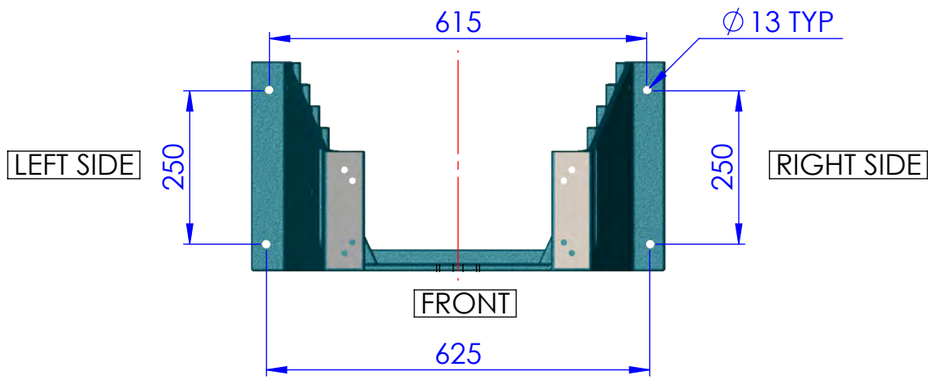


FRONT VIEW

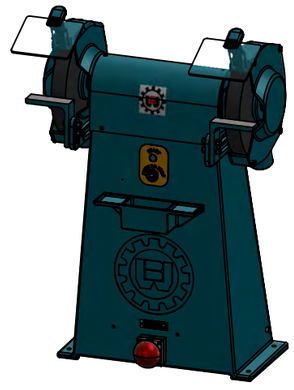
SIDE VIEW



SAFE WORKING ZONE



ANCHOR HOLE POSITIONS



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WEIGHT: 255 KG

UNLESS OTHERWISE SPECIFIED:
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SURFACE FINISH:
TOLERANCES:
LINEAR:
ANGULAR:

BROBO GROUP
Address : 8 Fowler Rd, Dandenong VIC 3175
https://brobo.com.au/

TITLE:
PG350 MAIN DIMENSIONS

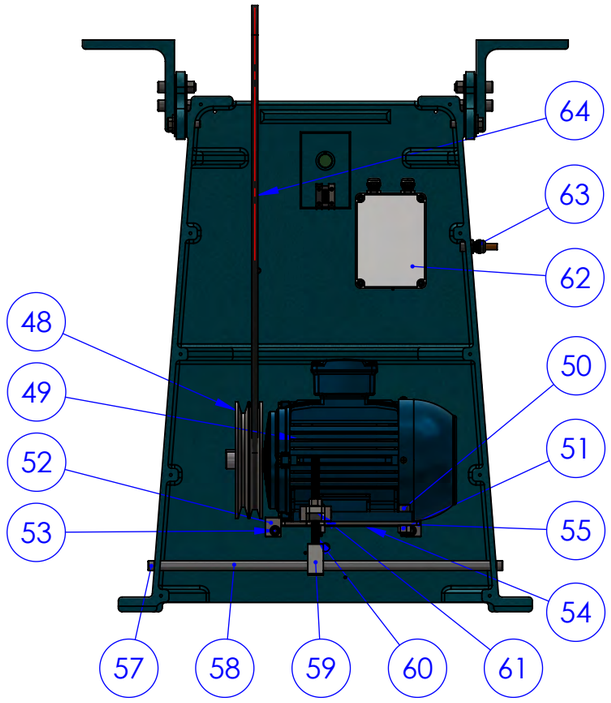
DO NOT SCALE DRAWING SCALE:1:10
DWG NO. PG350.01
REVISION 0
SHEET 1 OF 1 A3

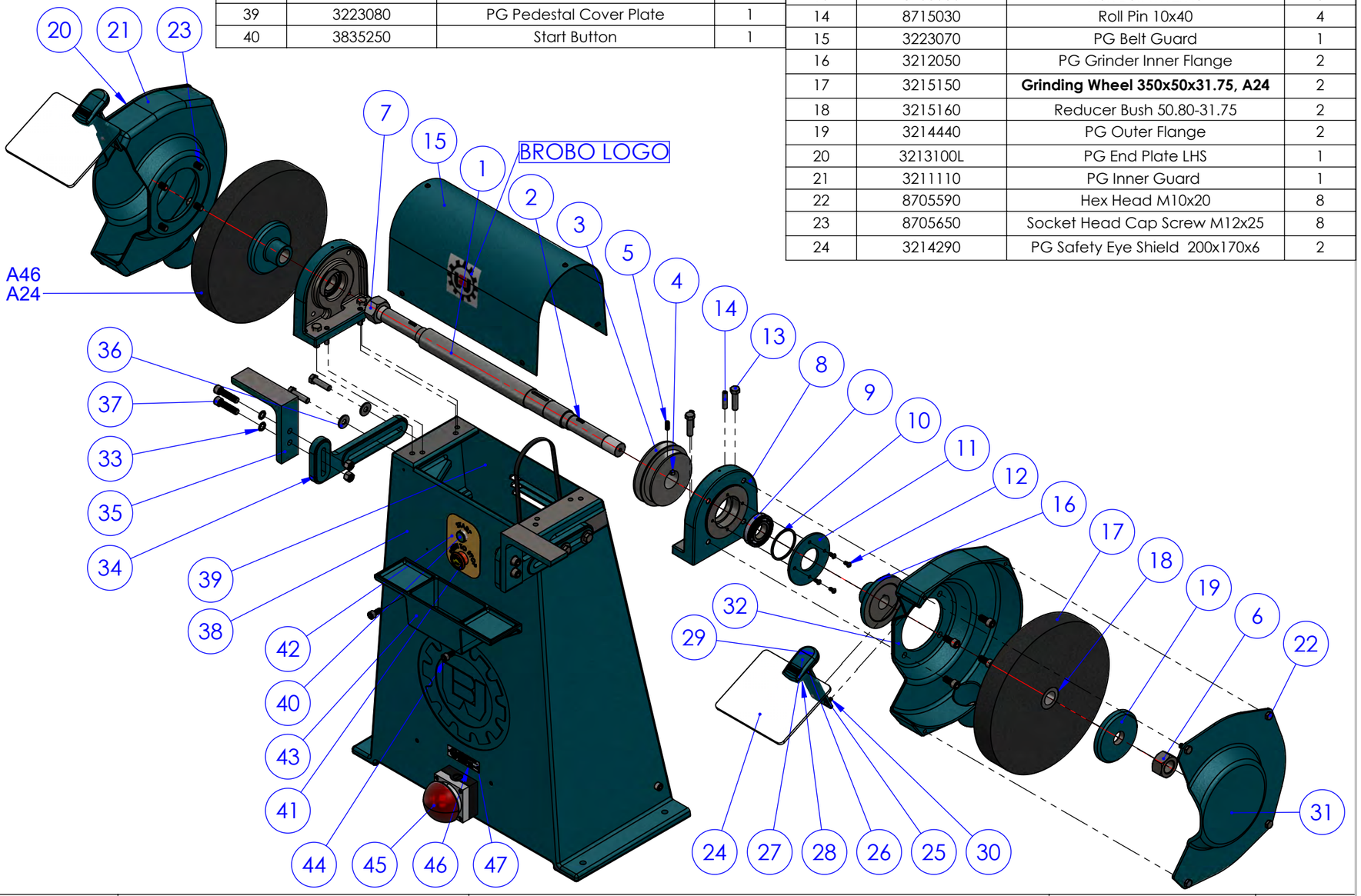
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
41	9935470	Stop/E-Stop Push Button	1
42	3214300	PG Start-Emergency Stop Label	1
43	3212070	Water Pot - 2020	1
44	8705160	Socket Head Cap Screw M10 x 20	2
45	1041650	Mushroom Switch	1
46	1065100	PG350 Name Plate	1
47	8715730	Drive Pin	2
48	3222190	PG350 Motor Pulley	1
49	3215430	PG Motor 2.2 kW	1
50	8705250	Socket Head Cap Screw M12x40	4
51	8705740	Hex Nut M12	9
52	3214060	PG Motor Hinge Block	2
53	8725500	Socket Head Cap Screw M10x35	2
54	3224250	PG Motor Plate (C2): Rod ⌀10x240	1
55	3223050	Motor Base Plate for CFSM Casting	1
56	3214270	PG Motor Plate (C3)	2
57	8705170	Socket Head Cap Screw M10x25	2
58	3234150	PG Motor Support Rod	1
59	3224230	PG Rod Hinge	1
60	3234170	Stud M12 x 170	1
61	3214280	PG Motor Plate (C1)	1
62	PGS	PG Switch	1
63	1045750	Cable Gland M16	1
64	3225170	PG350 Belt Drive	1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
25	3213080	PG Spark Shield Bracket	2
26	3632030	Mounting Bracket - Bottom	2
27	3632020	Mounting Bracket Top Eyeshield	2
28	FASEM4X16PTBUT	Post Torx Button Screw M4x16	4
29	FASEM4X8PTBUT	Post Torx Button Screw M4x8	6
30	8726100	Button Head Socket Screw M6x16	4
31	3213100R	End Plate RHS	1
32	3211100	PG Inner Guard RHS	1
33	8705870	Spring Washer M12	4
34	3212030	PG Toolrest Arm	2
35	3212040	PG Toolrest	2
36	8725710	Flat Washer Over Size 12x30x3	4
37	8725480	Socket Head Cap Screw M12x50	4
38	3222010	PG Pedestal (Casting)	1
39	3223080	PG Pedestal Cover Plate	1
40	3835250	Start Button	1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	3224020	PG Spindle	1
2	5015150	Woodruff Key No.9	2
3	3225050	PG Spindle Pulley - 42mm Bore	1
4	9314420	Key - Main Spindle	1
5	8705380	Socket Set Screw M8x16	2
6	3215110	Spindle Hex Nut 1 1/4" x 7 TPI - RH	1
7	3215100	Spindle Hex Nut 1 1/4" x 7 TPI - LH	1
8	3222020	PG Bearing House	2
9	3225010	Deep Groove Ball Bearing 6207-N (35x72x17)	2
10	3224030	PG Bearing Spacer 71.5x65x3	2
11	3213040	Bearing Cover 53x120	2
12	8735490	Button Head Socket Screw M6x12	14
13	8735050	Hex Bolt M12x45	8
14	8715030	Roll Pin 10x40	4
15	3223070	PG Belt Guard	1
16	3212050	PG Grinder Inner Flange	2
17	3215150	**Grinding Wheel 350x50x31.75, A24**	2
18	3215160	Reducer Bush 50.80-31.75	2
19	3214440	PG Outer Flange	2
20	3213100L	PG End Plate LHS	1
21	3211110	PG Inner Guard	1
22	8705590	Hex Head M10x20	8
23	8705650	Socket Head Cap Screw M12x25	8
24	3214290	PG Safety Eye Shield 200x170x6	2

OPTION
3215140 Grinding Wheel 350x50x31.75, A46
3215150 Grinding Wheel 350x50x31.75, A24





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SURFACE FINISH:
TOLERANCES:
LINEAR:
ANGULAR:

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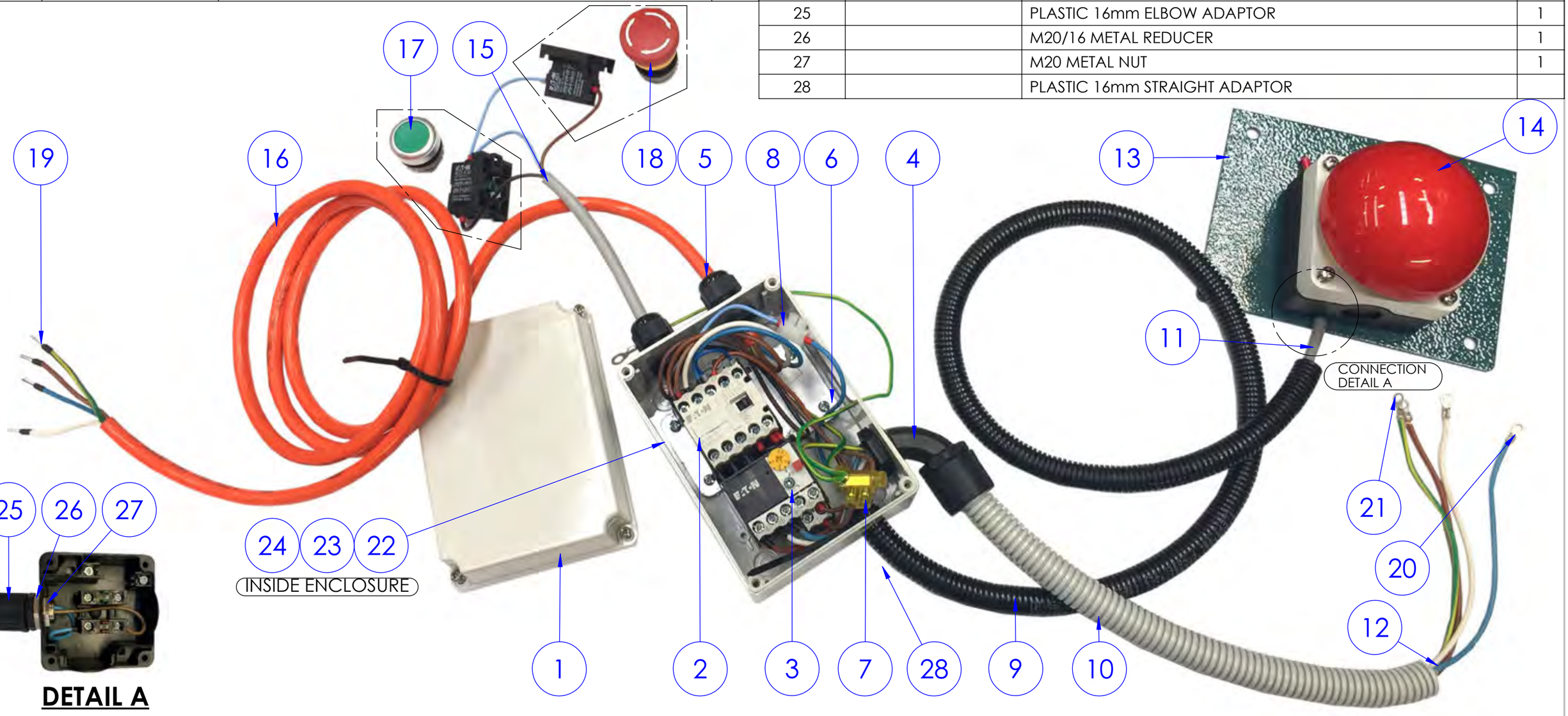
TITLE:
PG350 PEDESTAL GRINDER ASSEMBLY

DO NOT SCALE DRAWING SCALE:1:10
DWG NO. 3220020
REVISION 0
SHEET 1 OF 1 A3

ITEM NO	PART NO	DESCRIPTION	QTY
1		ENCLOSURE	1
2		415 VAC CONTACTOR - NVR	1
3		THERMAL OVERLOAD 4A-6A	1
4		20mm PLASTIC ELBOW	1
5		16mm CABLE GLAND	2
6		CONTACTOR MOUNTING PLATE	1
7		DOUBLE SCREW CONNECTOR	1
8		SINGLE STRIP CONNECTOR	1
9		16mm CORRUGATED NYLON CONDUIT 760 mm LENGTH	1
10		20mm CORRUGATED NYLON CONDUIT 300 mm LENGTH	1
11		2 CORE 1.0mm2 CABLE FOR F.SWTICH CIRCUIT 1.2m LENGTH	1
12		4 CORE 1.5mm2 MOTOR SUPPLY CABLE 600mm LENGTH	1

ITEM NO	PART NO	DESCRIPTION	QTY
13	3222010	PG PEDESTAL - CASTING	1
14		MUSHROOM SWITCH	1
15		4 CORE 1.0mm2 CONTROL CABLE 500mm LENGTH	1
16		4 CORE 1.5mm2 MAIN SUPPLY CABLE 2.2m LENGTH - ORANGE	1
17		START PUSH BUTTON ASSEMBLY	1
18		STOP PUSH BUTTON ASSEMBLY	1
19		1.5mm2 BOOT LACE PINS	10
20		⌀4 NON-INSULATED EYELET	3
21		⌀5 NON-INSULATED EYELET	2
22		SINGLE CORE 1.0mm2 BLUE 70mm LENGTH	1
23		SINGLE CORE 1.0mm2 BLACK 50mm LENGTH	1
24		SINGLE CORE 1.0mm2 BROWN 300mm LENGTH	1
25		PLASTIC 16mm ELBOW ADAPTOR	1
26		M20/16 METAL REDUCER	1
27		M20 METAL NUT	1
28		PLASTIC 16mm STRAIGHT ADAPTOR	



DETAIL A

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UNLESS OTHERWISE SPECIFIED:
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SURFACE FINISH:
TOLERANCES:
LINEAR:
ANGULAR:

BROBO GROUP
Address : 8 Fowler Rd, Dandenong VIC 3175
https://brobo.com.au/

TITLE:

PG SWITCH COMPONENTS

DO NOT SCALE DRAWING SCALE:1:2
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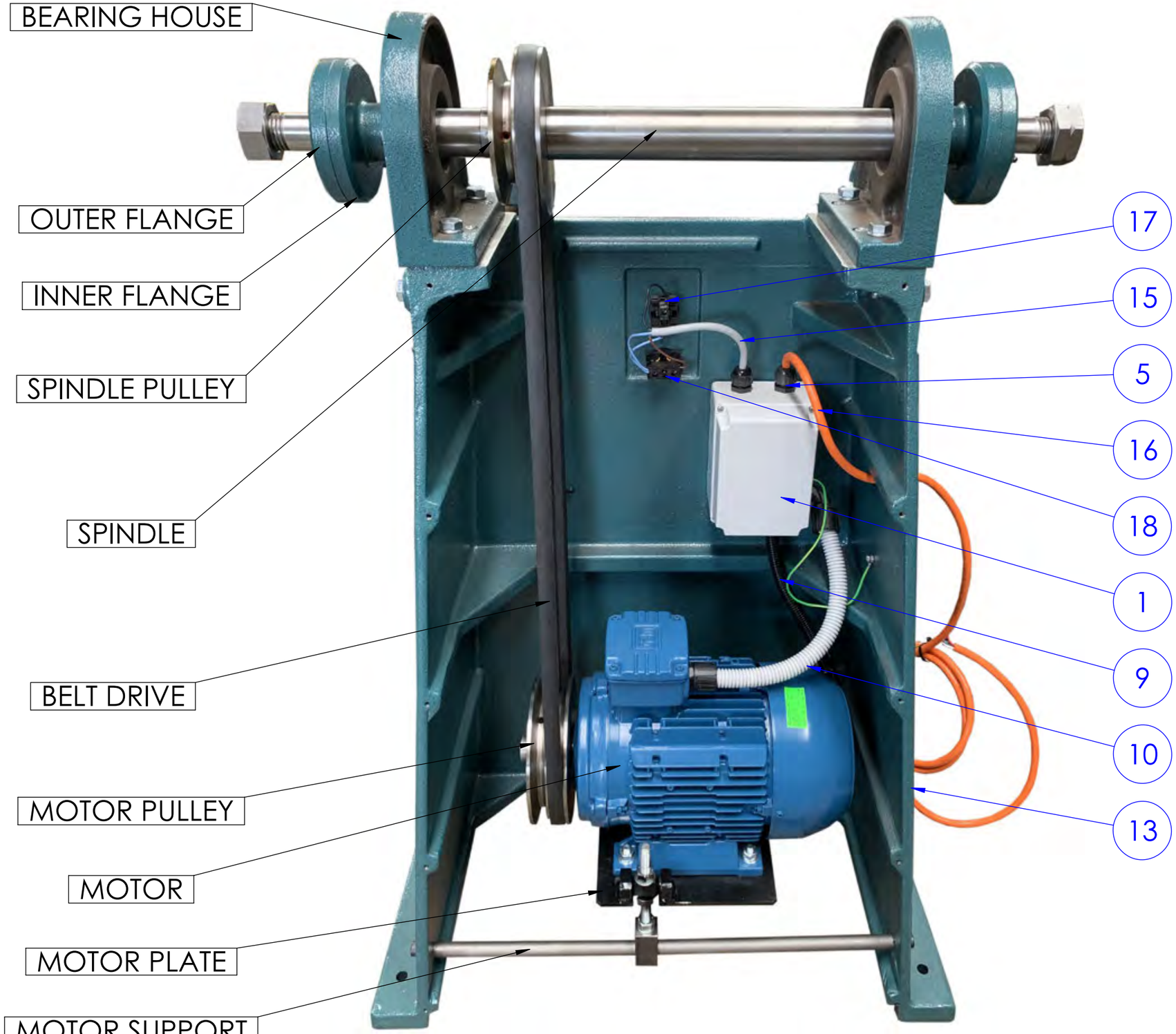
REVISION 0
SHEET 1 OF 2 A3



BACK VIEW

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WEIGHT:

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TOLERANCES:
LINEAR:
ANGULAR:

BROBO GROUP
Address : 8 Fowler Rd, Dandenong VIC 3175
https://brobo.com.au/

TITLE:
PG SWITCH COMPONENTS

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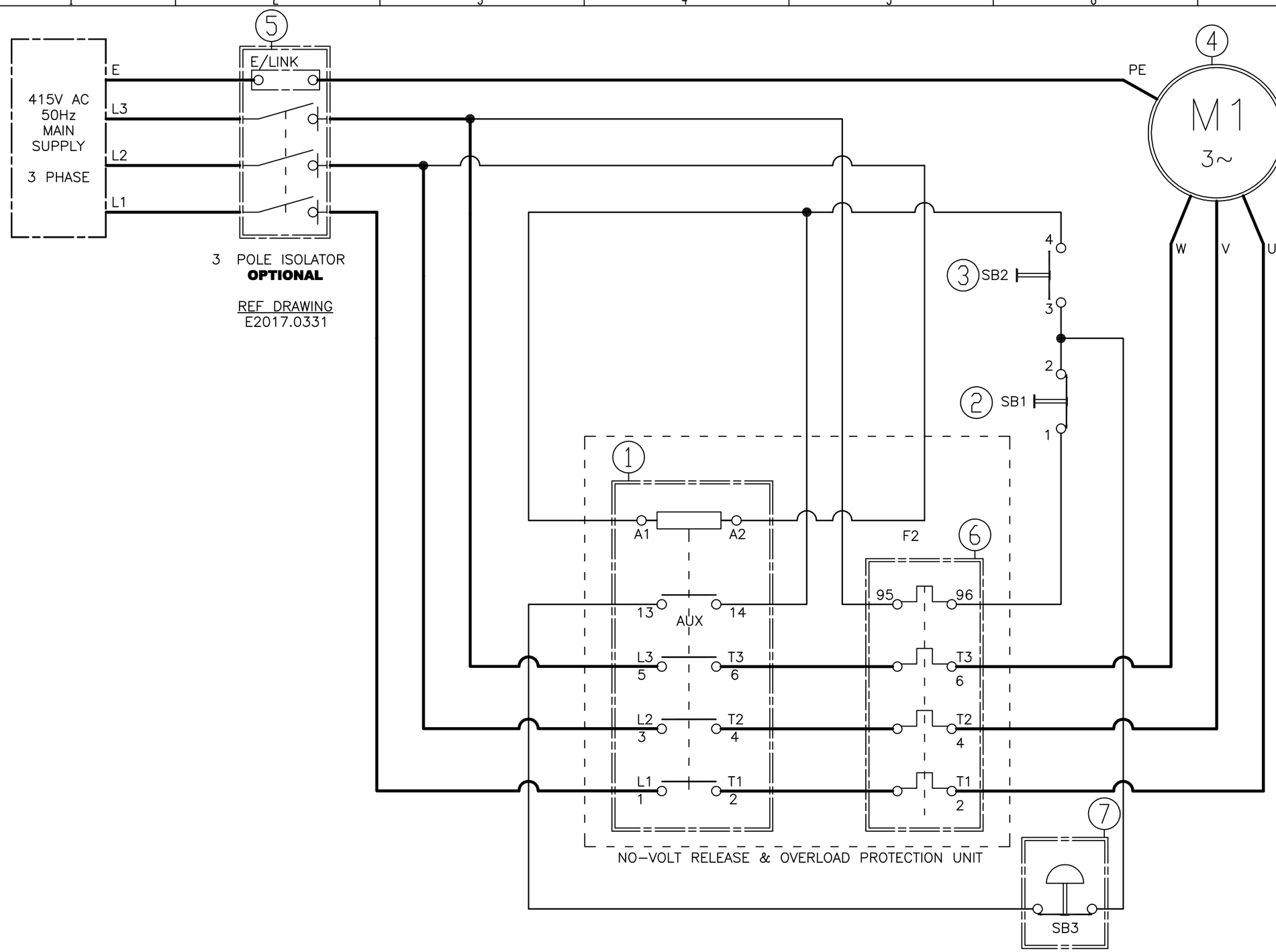
E1904.PG.C01
REVISION 0
SHEET 2 OF 2 A3



NO.		DESCRIPTION
1.	KM1	415V AC CONTACTOR
2.	SB1	STOP/E–STOP PUSH BUTTON N.C
3.	SB2	START PUSH BUTTON N.O
4.	M1	2.2 KW MOTOR 50Hz 415V AC
5.		ISOLATOR SWITCH
6.	F2	OVERLOAD PROTECTION UNIT
7.	SB3	MUSHROOM E–FOOTSWITCH

OPTIONAL

TECHNICAL INFORMATION

CONTACTOR

EATON
DILEM–10
XTMC9A10

415V AC 50Hz
IP20

ISOLATOR – 3 POLES

GEN 3
MIS3–20
20A
500V
50Hz
IP66

OVERLOAD

EATON
ZE–6
XTOM006AC1

1.6A – 2.4A
IP20

A (AUTOMATIC)
H (HAND)

OPTIONAL

3 PHASE PG GRINDER MOTOR ELECTRICAL SCHEMATIC

AS COLOUR CODE 3PH

L1	ACTIVE	BROWN
L2	ACTIVE	WHITE
L3	ACTIVE	DARK BLUE
E	EARTH	GREEN/YELLOW

REV	DATE	DESCRIPTION	DRA.	SIGN
0	20.02.2019	ISSUED	ANH	

DRAWN		
CHECK		
APPROVE		
ENGINEER	ANH	

PROJECT
BG GRINDER 3 PHASE

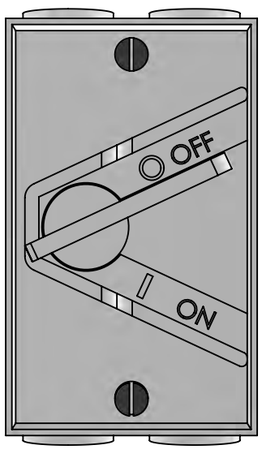
TITTLE
ELECTRICAL SCHEMATIC

BROBO GROUP
Address : 8 Fowler Rd,
Dandenong VIC 3175
http://brobo.com.au

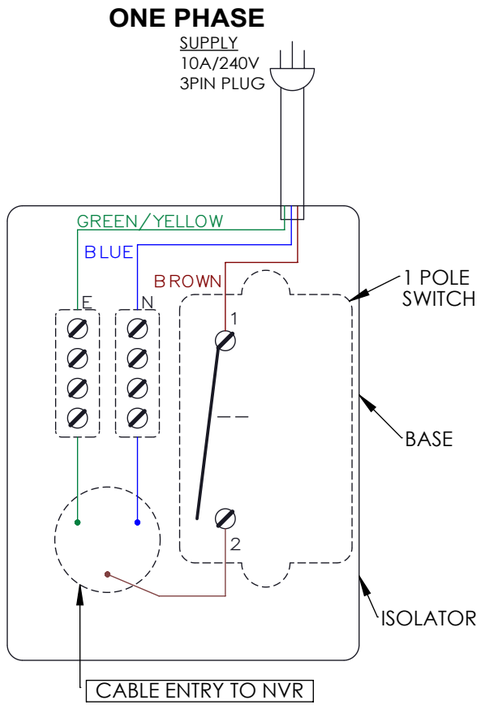
SCALE NTS	REVISION 0
DWG NO. E1902.BG	SHEET 1 OF 1

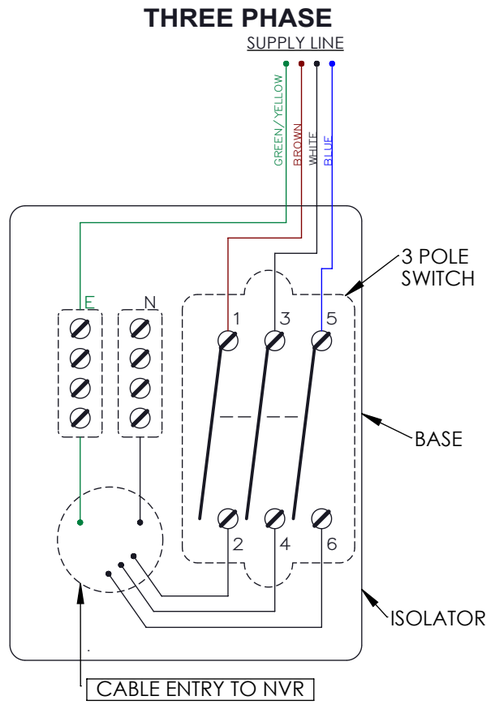
OPTIONAL

ISOLATOR: ONE PHASE



ISOLATOR: FRONT





COMPONENT / SCHEMATIC / WIRING DIAGRAMS FOR CONNECTION FOR 1 PHASE OR 3 PHASE CIRCUIT ISOLATOR

DRAWN ANH
DATE 08.07.2020
MATERIAL:
WEIGHT:

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MILLIMETERS
SURFACE FINISH:
TOLERANCES:
LINEAR:
ANGULAR:

BROBO GROUP
Address : 8 Fowler Rd, Dandenong VIC 3175
https://brobo.com.au/

TITLE:
ISOLATOR SCHEMATIC

DO NOT SCALE DRAWING SCALE:1:2
DWG NO.
E2017.0331

REVISION 0
SHEET 1 OF 1 A3

CHAPTER 5 – Maintenance & Selection of Consumables

5.1. Role of the Operator

The person operating & maintaining the ***Brobo Group PEDESTAL GRINDERS PG350*** must familiarise themselves with these instructions for their own safety & that of the others, in addition to safeguarding the production of the machine. Responsibility must be taken by the user on the general maintenance & up keeping of the unit as specified in this chapter, with particular emphasis on:

- Check to ensure that other operators of the machine always aware of & comply with the relevant safety instructions & standards as specified in *Chapter 2 - Safety & Accident Prevention*. Therefore, check that the safety devices are operational & work perfectly & that personal safety requirement is complied with.

- Ensure that the working cycle is efficient & guarantees maximum productivity, inspect the:
    - Functions of the main components of the machine
    - Grade of buffing mops &/or grit on the grinding wheel
    - Correct working parameters for the type of material being ground

- Verify that the quality of the ground material meets the requirements & that the final product is free from any machining defects.

5.2. Maintenance Requirements

- All maintenance must be carried out with the power switched off & the machine in emergency stop condition.

- To guarantee for optimum operation, all spare parts must be Brobo Group originals.

- On completion of maintenance works, ensure that the replaced parts or any tools used have been removed from the machines before starting it up.

- Any behavior not in accordance with the instructions for using the machine specified in this manual may create hazards &/or safety risks for the operator.

- Therefore, read & follow all the instructions for use & maintenance of the machine & those on the product itself.

WARNING – SAFETY GEAR

Protective clothing, safety glasses and gloves should **always** *be worn while loading parts, operating the machine, or undertaking any maintenance work on the machine.*

5.3. General Maintenance of Functioning Components

The general maintenance operations that should be carried out regularly are as follows:

1) Keep the area around the grinder free of any tools, loose parts, accumulated swarf & small offcuts by using compressed air or preferably thread-free cloth.

2) When applicable, lightly lubricate the spindle shaft bearings with an NLGI 2 extreme pressure grease, Shell Alvania No.1 grease or equivalent.

3) Check that the clamping nut & counter plate regularly to ensure it's in good condition. Do not over tighten the nut & counter plate, as this will inadvertently exert tension on the spindle & grinding wheel.

4) Clean & lubricate any moving joints or sliding surfaces with good quality oil.

5) Clean the grinding machine regularly & keep any unpainted surfaces lightly oiled to protect from rust & corrosion.

6) Check that the glass eye shield is in good condition & free of any damage. If a crack is present on the surface of the glass, immediately replace the eye shield by contacting the Brobo Engineering Department.

CHAPTER 6 - Troubleshoot

Below lists of some of the most common problems associated with the ***Brobo Group PG350 Pedestal Grinder*** & the recommended troubleshooting procedures to undertake to rectify the situation. If the solutions provided do not resolve the problems, or the problem identified differs from those listed, ***immediately*** contact Brobo Group engineering department.

PROBLEM IDENTIFIED	**DIAGNOSIS**	**SOLUTIONS**
Excessive consumption of grinding wheel/cracking of grinding wheel	Incorrect grade of grit on grinding wheel for parent material	Verify that the correct grade of grinding is suited for the parent material being ground.
	Excessively feed rate, forcing the parent material onto the grinding wheel	Reduce the feed rate onto the grinder, else it might cause the parent material to break & cause harm to the operator.
	Cracking due to sudden force onto grinding wheel ('jarring' of grinding wheel)	Do not abruptly force the parent material onto the grinding wheel. Instead, the material should be fed onto the grinding wheel at a steady but constant rate.
Minimal material removed on the parent part when fed onto the grinder wheel	Clogged or worn grinding wheel	Replace the grinding wheel.
	Incorrect grade of grit on grinding wheel for parent material	Verify that the correct grade of grinding is suited for the parent material being ground.
The machine would not operate	Broken or worn component	All components of the grinder are sold as spare parts (pending availability). Please contact your nearest Brobo distributor or our Brobo Group head office. Please visit www.brobo.com.au for more details.
	The electrical component is worn	All electrical components to the grinder are sold as spare parts (pending availability). Please contact your Brobo distributor. Please also visit www.brobo.com.au for more details.

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APPENDIX - RISK/HAZARD ASSESSMENT

Hazard Type	Hazard Identification	Hazard Assessment	Hazard Management Strategies (Recommended for the Purchasing / Buyer / User)
Mechanical	Cutting/Severing	Med/High	Keep machine correctly guarded & operational at all times. Keep hands clear of rotating spindle/grinding wheel.
	Entanglement	Low	Do not wear loose jewelry, clothing or items that might get caught in the grinder. Always keep the work area free of unnecessary objects or tools.
	Impact	Low	Wear protective safety glasses when utilizing the grinding machine. Strongly encouraged that steel-capped safety boots be worn during operation of grinder machine.
Electrical	Electrocution	Low	Remove the power supply when any maintenance &/or repairs are to be undertaken. The power source is to be isolated prior to opening electrical enclosures.
Noise	-	Low	Under no load testing, the noise level measured is below 80db (A). If the noise level becomes too high during a grinding cycle, stop the process & inspect for the problem, if any are present.
Substance	-	Low	Keep the work area clean & regularly remove excess coolant, oils, & another aggregate.
Hazardous Events	Unexpected Start-Up	Low	During a power failure, turn the machine off. If the problem persists, please contact Brobo Group engineering department.
Additional Hazards	Operator Error	Low	Ensure grinder wheel, counter plates & locking nuts are correctly secured.

MACHINE TYPE: _____

SERIAL NO.: _____

RECEIVING COMPANY: _____ (SAFETY OFFICER)