MAGBEAST®

JEI Solutions
Built for Industry

SAFETY INSTRUCTIONS AND OPERATORS MANUAL FOR DRILLING MACHINE

MAGBEAST 4

Unit 30 New Hall Hey Business Park, Rawtenstall, Lancashire

England BB4 6HR U.K.

Tel. +44 (0)1706 229490 Fax. +44 (0)1706 830496

www.jeiuk.com e-mail: sales@jeisolutions.co.uk

TABLE OF CONTENTS

I. SAFETY INSTRUCTION ..... - 3 -
1. General information ..... - 3 -
2. Important safety instruction ..... - 3 -
II. OPERATING INSTRUCTIONS ..... - 5 -
1. Cutters and optional equipment features ..... - 5 -
2. Magnetic drilling machine start up ..... - 6 -
3. Machine start-up ..... - 9 -
III. MAINTENANCE AND SERVICE ..... - 10 -
IV. TECHNICAL DATA ..... - 11 -
V. PARTS LIST ..... - 13 -
VI. ELECTRICAL DIAGRAM ..... 15 -

BEFORE YOU START WORK WITH THE MACHINE,

PLEASE READ THESE INSTRUCTIONS CAREFULLY

AND USE ALL RECOMMENDATIONS.

I. SAFETY INSTRUCTION

Portable Drilling Machine on electromagnetic base should be used consistent with their purpose. Inconsistent use may cause a danger for human beings and operating machine.

1. General information

Portable drilling machines with electromagnetic bases are fast becoming very universal power tools not only at steel fabricating workshops or steel building sites but also at every factory maintenance workshop, truck manufacture & repair company, military equipment service, onboard ship maintenance shop etc. where the size of machined components cannot benefit from large stationary drills and diameters of holes made prevent the use of classic hand drills.

Electromagnetic drilling base provides safe machine fixing to steel construction with the strength which ensures correct operation of drilling machine as well as User safety. This way of fixing the machine makes holes making possible in various work positions for example vertical steel columns or steel floors.

In these working positions all Portable Magnetic Drilling Machines must be secured with the safety chain in case of the potential danger of power supply loss.

2. Important safety instruction

Drilling machine must not be used when:

1. The operator has not read the Operator's Manual.
2. The work to be done is not in agreement with the recommendations in this Manual.
3. Drilling machine is not complete or has been repaired with non-original parts.
4. Power supply parameters do not conform to those stated on the motor's plate.
5. Machine operator has not checked condition of the drilling machine, condition of power cable, control panel or cutter.
6. Power supply socket is not equipped with a protection circuit.
7. Machine is not secured with safety chain as a protection from falling down especially when used at heights or in vertical or upside-down positions.
8. Bystanders are present in the immediate vicinity of machine.

⚠ Warning!

Read and save all instruction for future reference!

1. Before attempting to work with the machine check condition of electrics including power cord and plug.
2. The drilling machine should be connected to an installation equipped with protection circuit (neutral or ground) and protected with a 16 A fuse for 220V and 32 A fuse for 120V. **When used on building sites, it must be supplied through a separation transformer made in the second class of protection**
3. Machine can be used outdoors, but is not weatherproof. Do not expose to rain, snow or frost.
4. Machine should not be used on: rusty surfaces, steel plates with thick covered with paint, uneven surfaces, next to a welding machine.
5. In all cases always use a safety chain/strap /see drawing 1/. The safety chain mustn't be loose! To avoid this situation the safety chain should be wrapped around the element it is hooked to.

Drawing No 1 The safety chain application

⚠ **It's recommended to use the safety chain following the pictures**

6. Do not use the machine in explosion hazard zones.
7. Do not start work if the machine has excessive play on guide slides.
8. Always wear safety goggles and ear protection.

9. Do not remove metal chips with bare hands.
10. Do not touch the spindle and the cutter during work.

Do not touch or replace the tool with power source on – while electromagnetic base is being used.

11. Tools must be fastened firmly. When a milling cutter is used, check before start of work if tool holding screws are screwed tight.
12. It is not permitted to use blunt of damaged tools.
13. Do not use milling cutter without pilots, and arbors without ejection spring.
14. Use tools recommended in Operator's Manual only.
15. After use always clean drilling machine from metal chips and coolant.
16. Always unplug machine from power supply during any work on the machine

Do not use drill on steel thinner than (less than 3/8" (10 mm)). On thin steel (less than 3/8" (10 mm)) magnet's adhesive power would be significantly reduced which can cause machines failure or individuals injury. The machine should be located on the work piece with the entire surface of the electromagnetic base! It is recommended that each time, before positioning the machine surface under the electromagnetic base should be sanded down with abrasive paper!

Thickness lower than 5mm: Magnetic drilling machine MagBeast 4 won't start because of CLAMPING FORCE CONTROL SYSTEM.

Warning!

Read and save all instruction for future reference!

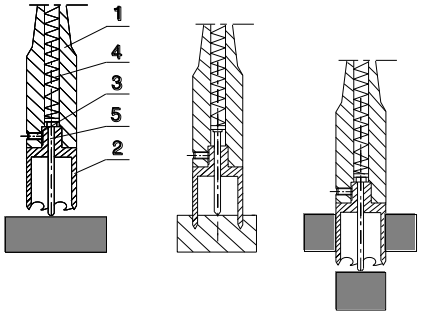
II. OPERATING INSTRUCTIONS

1. Cutters and optional equipment features

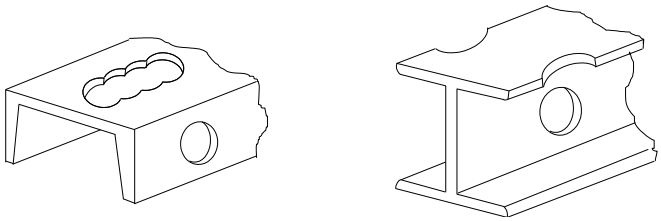
The drilling machine has a spindle with Morse Taper MT4 to use twist drill (by using the reduction adapter if necessary) and annular cutters. Arbor mark AMT is mounted in spindle conical taper to fix annular cutters.

Milling cutter (2) is located inside arbor body (1) and is fastened with screws (3). While fastening the cutter in the socket, be aware that screws should be screwed tight so that they could not come

unscrewed. It is important to position the cutter in relation to the socket in such a way that fixing flats on the cutter shank are positioned opposite to the fixing screws (3). Both fastening screws (3) should be used to fasten the cutter. Pilot (5) is located inside the cutter. It makes it easier to position milling cutter over center of a planned hole. During drilling as the cutter goes deep into steel, the pilot moves back into the arbor body and tightens discharge spring (4). That spring ejects slug which is a by-product of milling a hole with a center free cutter [Drawing No.3].



Drawing No 2.
Principle of annular cutter's work



Drawing No.3
Types of holes that can be done with an annular cutter

2. Magnetic drilling machine start up

The machine is supplied in a metal box with complete standard equipment.

MagBeast 4 comes in a standard equipment set which consists of:

- metal box
- drilling machine
- arbor AMT4-U-19 4-3
- cooling system
- chip guard
- spoke handles
- Allen wrenches:

- hex s=2,5
- hex s=5

- 8 mm flat wrench
- wedge, MT4
- technical chain
- snap hook
- operator's manual

2.1 Before first drill:

- steel elements of the drilling machine are protected for transit and storing with grease film. Before first startup of the machine all grease should be removed.
- before each use all handles should be screwed into pinion.

2.2 Before setting the machine on an item make sure that:

- substrate is a steel and ferromagnetic (some of stainless steel or acid-proof or do not conduct the magnetic flux);
- thickness of work piece is at least 3/8" (10 mm)
- surface of steel under the magnet is flat
- wipe, brush or sand down clean surface where you intended to place the drilling machine, so that you remove rust, paint, dirt etc which would reduce adhesive power of the electromagnetic base.

2.3 Preparation the machine for drilling

1. Set the drilling machine on the surface of the element which hole is to be drilled.
2. Accurately and securely attach the drill spindle in the nest (see II, point 1)
3. Plug in the drilling machine accordance to the requirements (see I point 2)
4. Set the axis of the spindle exactly over the place of drilling (the tool is over the center of the hole)
5. Turn the magnetic base ON

Prior to use!

Always make sure that the electromagnetic machine is secured from falling down during vertical, ceiling work with <u>original</u> chain (as described in paragraph I point 2 "Important rules of safe use of drilling machine")

2.4 Cutting

1. Fill cooling reservoir with cooling/lubricating fluid

2. Check working of cooling system. Open coolant reservoir's tap and apply pressure on the pilot by turning spokes counter clockwise. As the pilot starts to sink into the cutter cooling liquid should start to run down cutters inner wall. If there is no liquid flowing down check if the tap is fully opened. It may take a few seconds for cooling liquid to fill the whole system.
3. Turn the motor on.

WARNING: The cooling system can only be used when drilling machine is in vertical position. In other positions additional external source of cooling should be used, for example: a coolant bottle with a long nozzle.

4. Start the engine by button **„I"** on the control panel (see II point 3). Drilling in the material must be conducted with sensitivity.
5. Some of magnetic drilling machines have a built-in overload system. Overload is indicated by red LED diod on the control panel. Further increasing the engine load causes the activation of the overload system and power source loss. It's possible to continue the drilling operation by pressing the "O" MOTOR switch to reset the system and restart the engine. Periodic, uncommon illumination of LED's diod during the drilling process is normal. This means that the drilling process is used in a maximum extent permissible engine capacity.
6. Making a hole with a milling cutter should ideally be done in one pass. It makes the cutter work better and easier to eject the slug after the hole is completed.

WARNING*: when the milling cutter goes through the material the slug can be pushed out often with considerable strength. Pay attention to avoid injury.*

7. Due to safety work should not be allowed to do the formation of chips too long or to do the winding on the handle or drill.
8. After a hole is made the cutter should be withdrawn back and both the motor and the electromagnet should be switched OFF.
9. When work with the machine is finished the power cord should be disconnected from the power source, the machine should be cleaned up from chips, and coolant etc. The cutter should be removed and cleaned.
10. The tool should be removed from drill chuck before inserting to the toolbox.

2.5 Electromagnetic base clamping force control system

This system for security reasons is an integral part of each drill type PRO. It works by constant monitoring of the electromagnetic force base adhesion value to the substrate. In the case of fall the force value below to guarantee safe operation of the machine, the system automatically switches off the drive drill. It also does not allow enabling drive which does not guarantee the proper clamping force.

Clamping force depends on: type and thickness of substrate, thick coatings on the substrate, rust or other contaminants, lack of flatness of the substrate, excessive roughness of the surface, and excessive wear of the lower part of the electromagnetic base.

If there's a problem to enable drive after turn on of the electromagnetic base so drive works only after START button is pressed, and after release the drive is off - it means that system works properly. The system didn't allow to for further work due to insufficient clamping force drills.

2.6 Working in difficult areas

While working in difficult access areas as well as left-handed operator, there's a possibility to change location of the pinion with spoke handles to the other side of drilling machine.

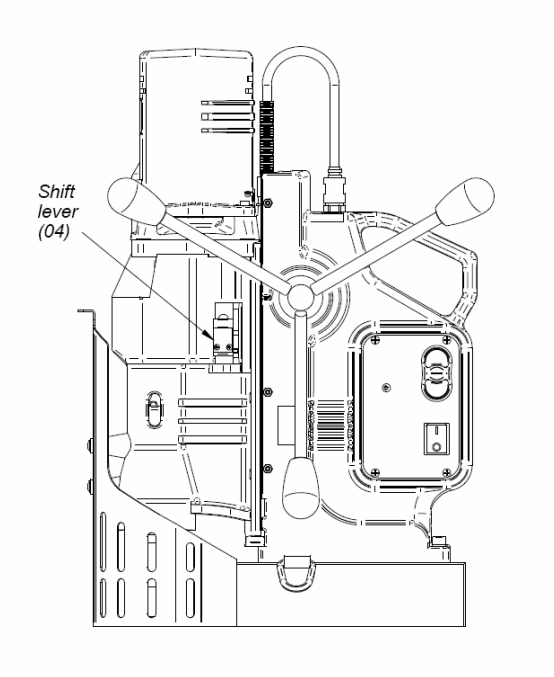
3. Machine start-up

In order to start the machine press the main switch MAGNET (01) on "I" button. By pressing green button (02) MOTOR on "I" start the motor.

a) Stopping the motor is executed with red button „O" (02) (the motor is switched OFF but the electromagnetic base is still ON) (02).
b) Blinking of the red LED overload indicator (03) means that the machine is working at the limit of the overload. The machine can be automatically turned off at any time.
c) To change the rpm speeds machine use the shift lever (04)

Drawing No.5 Control Panel

Drawing No.6 View of the machine MagBeast 4



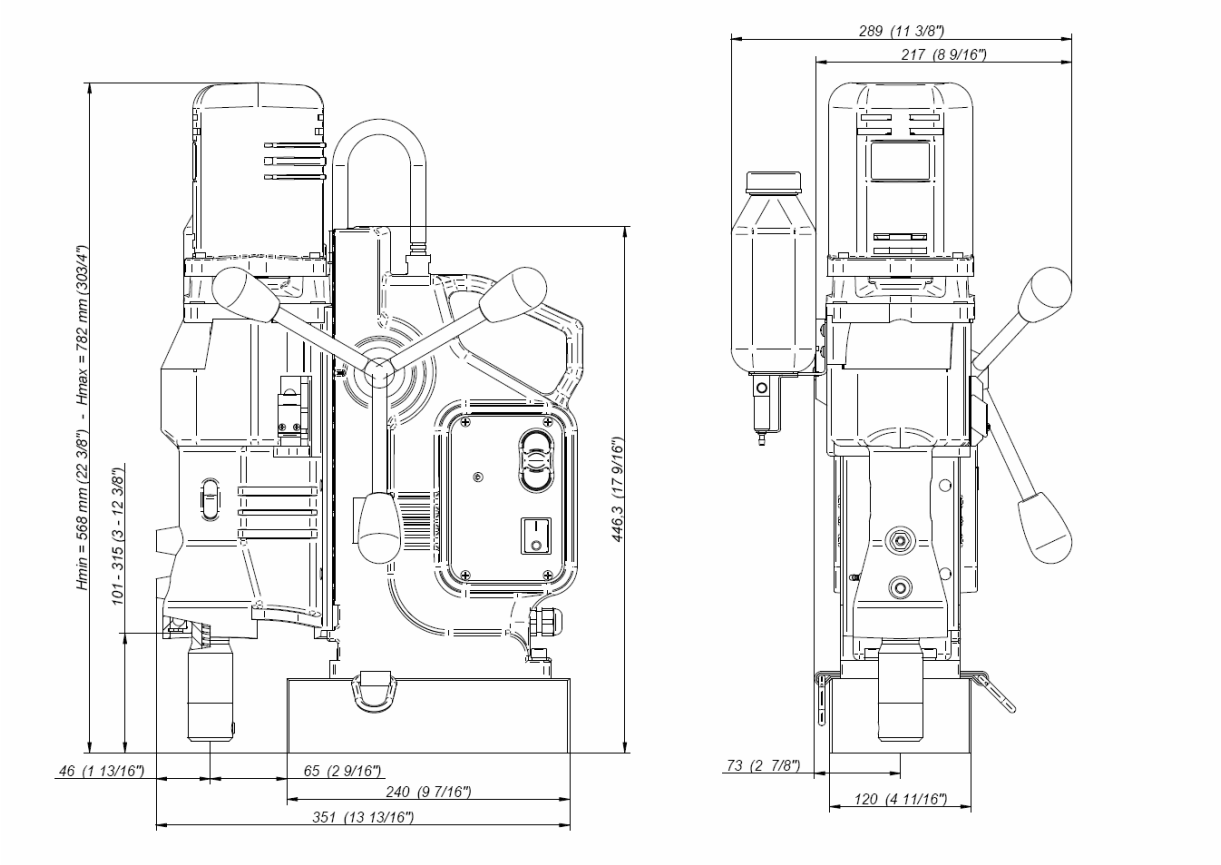
 To move machine into next drilling spot, stop the motor as described above then push switch MAGNET into the position “O”.

III. MAINTENANCE AND SERVICE

To avoid accidents drill stand, power cable, wiring, plug connectors, switches must be regularly inspected for damage.

- Perform adjustment of the machine play guides every 50 hours or as necessary performed by the regulation screws. Slide guide loose is correct if the drive can be moved smoothly by using the lever. It’s not accepted to automatically slide down under its own weight.
- Due to the distribution of lubricant after every days work position of gear lever (used for selection of gearbox speed) should be changed. For example if machine worked with 150 rpm speed, it should be switched to 300rpm. (see IV point.1).
- Every 250 hours of work check condition of carbon brushes. If their length is less than 5 mm they should be replaced for original new ones. After replacement new brushes should be run-in without load for about 20 min. Other repair work should be done only by authorized service points, appointed by distributor. Replacement of brushes is possible without removal motor unit from the unit.
- Lubricate regularly brass slide guide inserts with grease as well as the rack and pinion.
- To prevent the machine from rusting (especially when used outdoors or) all steel parts should be covered with thin layer of grease film.
- Damaged machine parts to be exchanged only to original parts.
- New spare parts order: required to enter the code (see V Parts list) or send the damage part with information about type of drilling machine and power supply.

IV. TECHNICAL DATA



Power supply	☐ 110÷120V AC / 50-60 Hz ☐ 220÷240V AC / 50-60 Hz
Power required	☐ 110÷120V - 1700 W ☐ 220÷240V - 1800 W
Motor power	☐ 110÷120V - 1550 W ☐ 220÷240V - 1650 W
Tool holder	Morse Taper No 4
Max. twist drill diameter	16-47 mm (5/8" ÷ 1 7/8")
Max. annular drill diameter	12-110 mm (1/2" ÷ 4 5/16")
Max. milling depth	76 mm (3")
Insulation Class	I
Standard adhesive force of electromagnet (for steel 7/8" (22 mm) thick and $R_a < 1,25$)	22 000 N
Slide stroke	230 mm
Machine speeds /under load/	I – 85 min^{-1}, II – 135 min^{-1} III – 160 min^{-1}, IV – 250 min^{-1}
Electromagnetic base	120x240x63 mm
Length of the power cord	3,0 m
Total weight	31 kg
Noise level	85 dB
Surrounding temperature	0 ÷ 40° C

Using the drill on the electromagnetic base MagBeast 4 with special annular cutters we are capable of drilling and reaming holes up to 110mm diameter and 76mm depth with a precision achievable previously only in a workshop.

Every 100 hours of work by drilling machine MagBeast 4 check condition of carbon brushes. If their length is less than 5 mm they should be replaced for original new ones. After replacement new brushes should be run-in without load for about 20 min. Replacement of brushes is possible without removal motor unit from the unit.

1. Parameters depending on spindle speed(drilling)

Due to the distribution of lubricant after every days work position of gear lever (used for selection of gearbox speed) should be changed. For example if machine worked with 85 rpm speed, it should be switched to 250rpm. If machine worked with 135 rpm speed, it should be switched to 160 rpm.

Relationship between machine speed and cutter diameter

The cutter diameter		Rotary speed [rpm]
[inch]	[mm]	
under 2,95	above 75	85
1,93÷2,95	50÷75	135
1,14÷1,93	30÷49	160
0,47÷1,14	12÷29	250

Relationship between machine speed and twist drill diameter

The twist drill diameter		Rotary Speed [rpm]
[inch]	[mm]	
1,93÷1,85	30÷47	85
0,83÷1,93	22÷29	135
0,63÷0,83	16÷21	250

V. PARTS LIST

ITEM	JEI Part #	DESCRIPTION	Q-TY
1	MB4.1	FRAME ASSEMBLY	1
2	MB4.2	MOTOR COMPLETE /120V	1
2	MB4.2/220V	MOTOR COMPLETE /230V	1
3	MB4.3	PANEL PLATE ASSY	1
4	MB4.4	GUARD ASSY	1
5	MB4.5	ELECTRONIC CONTROL SYSTEM /120V	1
5	MB4.5/220V	ELECTRONIC CONTROL SYSTEM /230V	1
6	MB4.6	LOWER SLEEVE,	1
7	MB4.7	PINION SHAFT ASSY	1
8	MB4.8	SPOKE HANDLE INCLUDING KNOB (ASSY)	3
9	MB4.9	COOLANT SYSTEM	1
10	MB4.10	POWER CORD 120V 3x2,08	1
10.4	MB4.10.4	STRAIN RELIEF PG11	1
10	MB4.10/220V	POWER CORD 230V 3x1,5	1
10.4	MB4.10.4	STRAIN RELIEF PG11	1
11	MB4.11	ARBOR ASSY AMT4-U19/4-3	1
12	MB4.12	PUSH SPRING,	2
13	MB4.13	SCREW M4X10 PHCRMS	1
14	MB4.14	EXTERNAL RETAINING RING 28z	1
15	MB4.15	SPRING WASHER-4.3	6
16	MB4.16	SPRING WASHER-4.1	5
17	MB4.17	NYLON WASHER SR1940,	4
18	MB4.18	SOCKET BUTTON HEAD CAP SCREW WITH FLANGE M5x20,	2
19	MB4.19	CROSS RECESSED SCREW M4X12	4
21	MB4.21	CROSS RECESSED PAN HEAD TAPPING SCREW 3,5x13	4
22	MB4.22	WASHER,LOCK,INTERNAL STAR 3,7	4
23	MB4.23	EYE BOLT M8 B	1

		FRAME ASSEMBLY (MB4.1)	
ITEM	JEI Part #	DESCRIPTION	Q-TY
1.1	MB4.1.1	MAIN BODY ASSY	1
1.2	MB4.1.2	ELECTROMAGNETIC BASE	1
1.3	MB4.1.3	D-RING STRAP	1
1.4	MB4.1.4	HEX. SOCKET BOLT M8x30,	4
1.5	MB4.1.5	SPRING WASHER 8,2	4

		MAIN BODY ASSY (MB4.1.1)	
ITEM	**JEI Part #**	**DESCRIPTION**	**Q-TY**
1.1.1	MB4.1.1.1	MAIN BODY	1
1.1.2	MB41.1.2	PRESSURE PLATE	1
1.1.3	MB4.1.1.3	SLIDE INSERT	1
1.1.4	MB4.1.1.4	SELF LUBRICATING SLEEVE 28,05H7x32x16,	2
1.1.5	MB4.1.1.5	SPRING WASHER	4
1.1.6	MB4.1.1.6	DISC SPRING 4,2x10x0,5	32
1.1.7	MB4.1.1.7	HEX SOCKET BOLT-M5X20	5
1.1.8	MB4.1.1.8	ROUND WASHER 5,3	5
1.1.9	MB4.1.1.9	NUT M5	4
1.1.10	MB4.1.1.10	SOCKET SET SCREW M5x16,	4

		MOTOR COMPLETE /120V (MB4.2) MOTOR COMPLETE /230V (MB4.2/220V)	
ITEM	**JEI Part #**	**DESCRIPTION**	**Q-TY**
2.1	MB4.2.1	MOTOR /120V	1
		MOTOR BRUSH/120V	2
2.1	MB4.2.1/220V	MOTOR /230V	1
		MOTOR BRUSH/230V	2
2.2	MB4.2.2	GEARCASE ASSY	1
2.3	MB4.2.3	DISTANCE SLEEVE 25,1x31,8x4	1
2.4	MB4.2.4	GEAR z46	1
2.5	MB4.2.5	MOTOR WIRE ASSY	1
2.6	MB4.2.6	PINION SHAFT z=20 ASSY	1
2.7	MB4.2.7	MOTOR HOUSING	1
2.8	MB4.2.8	GEAR RACK	1
2.10	MB4.2.10	PINION SHAFT ASSY 14T,	1
2.11	MB4.2.11	PINION SHAFT ASSY 19/25,	1
2.12	MB4.2.12	PINION SHAFT ASSY z=14,	1
2.13	MB4.2.13	SHIFT FORK	2
2.14	MB4.2.14	SHIFT PIN SHORT	1
2.15	MB4.2.15	SHIFT PIN LONG	1
2.16	MB4.2.16	WASHER II	1
2.17	MB4.2.17	LABEL I , SHIFT LEVER	1
2.18	MB4.2.18	LABEL II , SHIFT LEVER	1
2.19	MB4.2.19	SHIFT DRIVE PIN (USA-5)	2

2.20	MB4.2.20	COMPRESSION SPRING (USA 5)	2
2.21	MB4.2.21	SHIFT LEVER	2
2.22	MB4.2.22	BEARING, NEEDLE RNA 4901	1
2.23	MB4.2.23	BEARING, NEEDLE RHNA 081210	3
2.24	MB4.2.24	NEEDLE BEARING RHNA 081512	1
2.25	MB4.2.25	NEEDLE BEARING HK 101410 CX	1
2.26	MB4.2.26	EXTERNALE RETAINING RING 25z	1
2.27	MB4.2.27	SPRING WASHER 5.1	2
2.28	MB4.2.28	SPRING WASHER 6,1	2
2.29	MB4.15	SPRING WASHER-4.3	1
2.30	MB4.2.30	SPRING PIN 3x12	2
2.31	MB4.2.31	SCREW M3x5 PHCRMS	4
2.32	MB4.13	SCREW M4X10 PHCRMS	1
2.33	MB4.2.33	HEX SOCKET BOLT M5x35 ,	2
2.34	MB4.2.34	HEX. SOCKET BOLT M5x50	4
2.35	MB4.2.35	HEX SOCKET BOLT-M6X25	2
2.36	MB4.2.36	KEY SQ 6x6x22	1
2.37	MB4.2.37	GROUND CONDUCTOR	1

		MOTOR /120V (MB4.2.1) **MOTOR /230V (MB4.2.1/220V)**	
ITEM	**JEI Part #**	**DESCRIPTION**	**Q-TY**
2.1.1	MB4.2.1.1	MOTOR COVER	1
2.1.2	MB4.2.1.2	GUIDE FAN	1
2.1.3	MB4.2.1.3	ARMATURE ASSY /120V	1
2.1.3	MB4.2.1.3/220V	ARMATURE ASSY /230V	1
2.1.4	MB4.2.1.4	ARMATURE TOOTH END z8	1
2.1.5	MB4.2.1.5	FIELD /120V	1
2.1.5	MB4.2.1.5/220V	FIELD /230V	1
2.1.6	MB4.2.1.6	UPPER HOUSING	1
2.1.7	MB4.2.1.7	CROSS RECESSED PAN HEAD TAPPING SCREW 4x20	4
2.1.8	MB4.2.1.8	SPRING WASHER	1
2.1.9	MB4.2.1.9	BRUSH /120V	2
2.1.9	MB4.2.1.9/220V	BRUSH /230V	2
2.1.10	MB4.2.1.10	SPRING BRUSH	2
2.1.11	MB4.2.1.11	HEXAGON BOLT M5x57	2
2.1.12	MB4.2.25	NEEDLE BEARING HK 101410 CX	1
2.1.13	MB4.2.23	BEARING, NEEDLE RHNA 081210	3

		GEARCASE ASSY (MB4.2.2)	
ITEM	**JEI Part #**	**DESCRIPTION**	**Q-TY**
2.2.1	MB4.2.2.1	GEARCASE	1
2.2.2	MB4.2.2.2	SPINDLE MT4	1
2.2.3	MB4.2.2.3	METAL INSERT	1
2.2.4	MB4.2.2.4	COOLANT COUPLING AMT2-H-19	1
2.2.5	MB4.2.2.5	BEARING 6008 2Z 40x68x15	1
2.2.6	MB4.2.2.6	BEARING 608 2Z	2
2.2.7	MB4.2.2.7	BEARING, ROLL- 25x42x17	1
2.2.8	MB4.2.2.8	SEAL 30x42x7	1
2.2.9	MB4.2.2.9	SEAL 40x52x7	1
2.2.10	MB4.2.2.10	SEAL 40x55x7	1
2.2.11	MB4.2.2.11	INTERNAL RETAINING RING - 40z	1
2.2.12	MB4.2.2.12	INTERNAL RETAINING RING - 42W	1
2.2.13	MB4.2.2.13	INTERNAL RETAINING RING - 68W	1
2.2.14	MB4.2.2.14	DOWEL, PIN 5 x 16 MM	1
2.2.15	MB4.2.2.15	HEX. SOCKET BOLT M-6X30	1
2.2.16	MB4.2.2.16	CROSS RECESSED RAISED COUNTERSUNK HEAD SCREW M5x10	2
2.2.17	MB4.2.2.17	DOWEL, PIN 5 x 12 MM	1

		PINION SHAFT z=20 ASSY (MB4.2.6)	
ITEM	**JEI Part #**	**DESCRIPTION**	**Q-TY**
2.6.1	MB4.2.6.1	GEARSHAFT, 20T	1
2.6.2	MB4.2.6.2	GEAR, 29T	1
2.6.3	MB4.2.6.3	HELICAL INPUT GEAR z45	1
2.6.4	MB4.2.6.4	KEY,WOODRUFF #403	1

		PINION SHAFT ASSY 14T (MB4.2.10)	
ITEM	**JEI Part #**	**DESCRIPTION**	**Q-TY**
2.10.1	MB4.2.10.1	SHAFT, PINION 14T	1
2.10.2	MB4.2.10.2	GEAR, DUAL 33T / 39T	1
2.10.3	MB4.2.10.3	kEY, SQ. 3X3X45	1

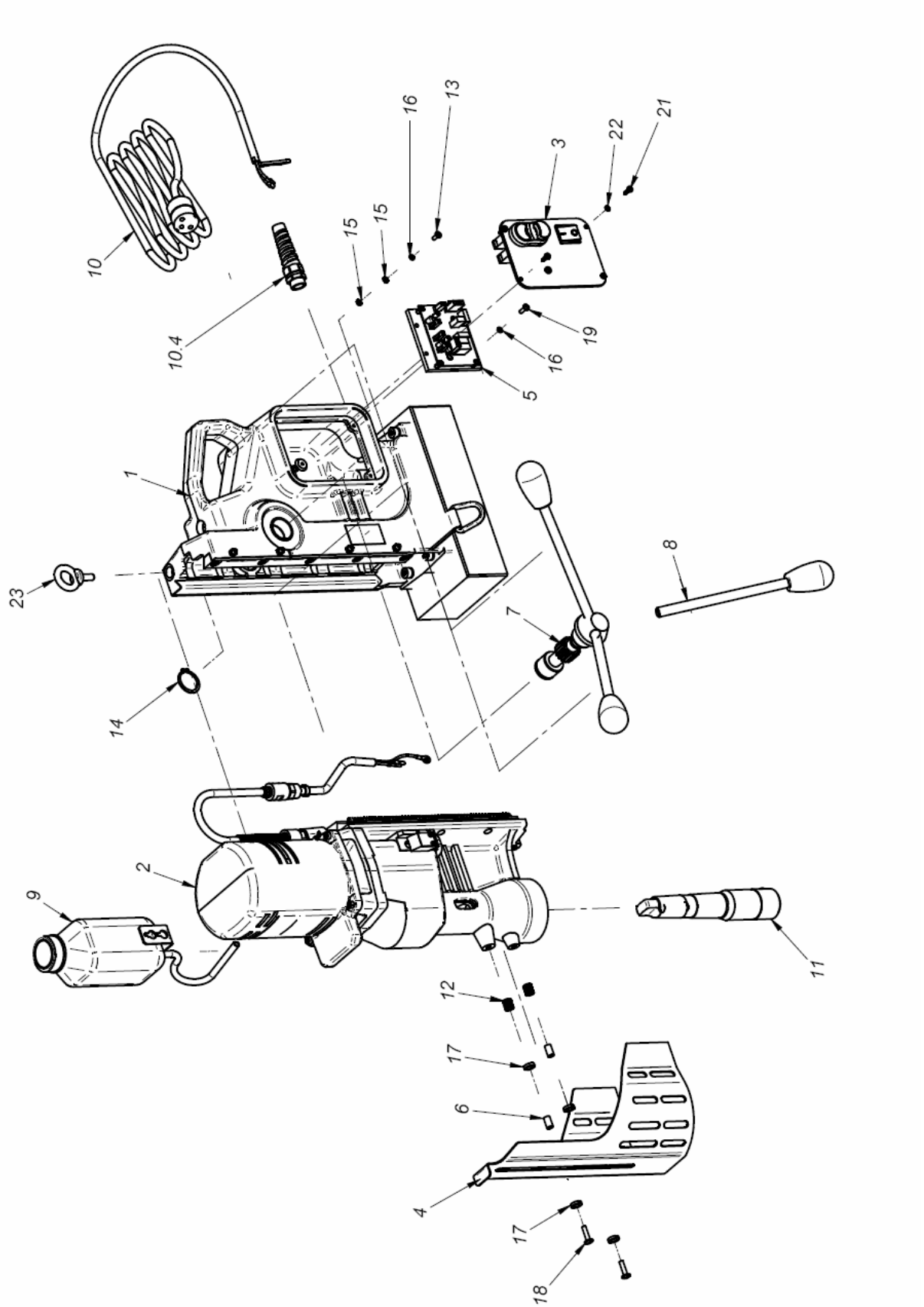
		PINION SHAFT ASSY 19/25 (MB4.2.11)	
ITEM	**JEI Part #**	**DESCRIPTION**	**Q-TY**
2.11.1	MB4.2.11.1	PINION SHAFT 19/25	1
2.11.2	MB4.2.11.2	GEAR, DUAL 31T/42T	1
2.11.3	MB4.2.11.3	SQUARE KEY 3X3X38	1

		PINION SHAFT ASSY z=14 (MB4.2.12)	
ITEM	**JEI Part #**	**DESCRIPTION**	**Q-TY**
2.12.1	MB4.2.12.1	GEARSHAFT 14-1.5 mm	1
2.12.2	MB4.2.12.2	GEAR, 33T	1
2.12.3	MB4.2.12.3	SQUARE KEY 5x5x12	1
2.12.4	MB4.2.12.4	EXTERNAL RETAINING RING- 18Z	1

		PANEL PLATE ASSY (MB4.3)	
ITEM	**JEI Part #**	**DESCRIPTION**	**Q-TY**
3.1	MB4.3.1	PANEL PLATE	1
3.3	MB4.3.3	SWITCH START-STOP,	1
3.4	MB4.3.4	START-STOP WIRE	1
3.5	MB4.3.5	SWITCH MAGNET	1
3.6	MB4.3.6	LIGHT PIPE	1

		COOLANT SYSTEM (MB4.9)	
ITEM	**JEI Part #**	**DESCRIPTION**	**Q-TY**
9.1	MB4.9.1	COOLANT VALVE,	1
9.2	MB4.9.2	COOLANT BRACKET	1
9.3	MB4.9.3	BOTTLE,	1
9.4	MB4.9.4	NUT M8x1	1
9.5	MB4.9.5	PLASTIC HOSE 4MM	0,27m

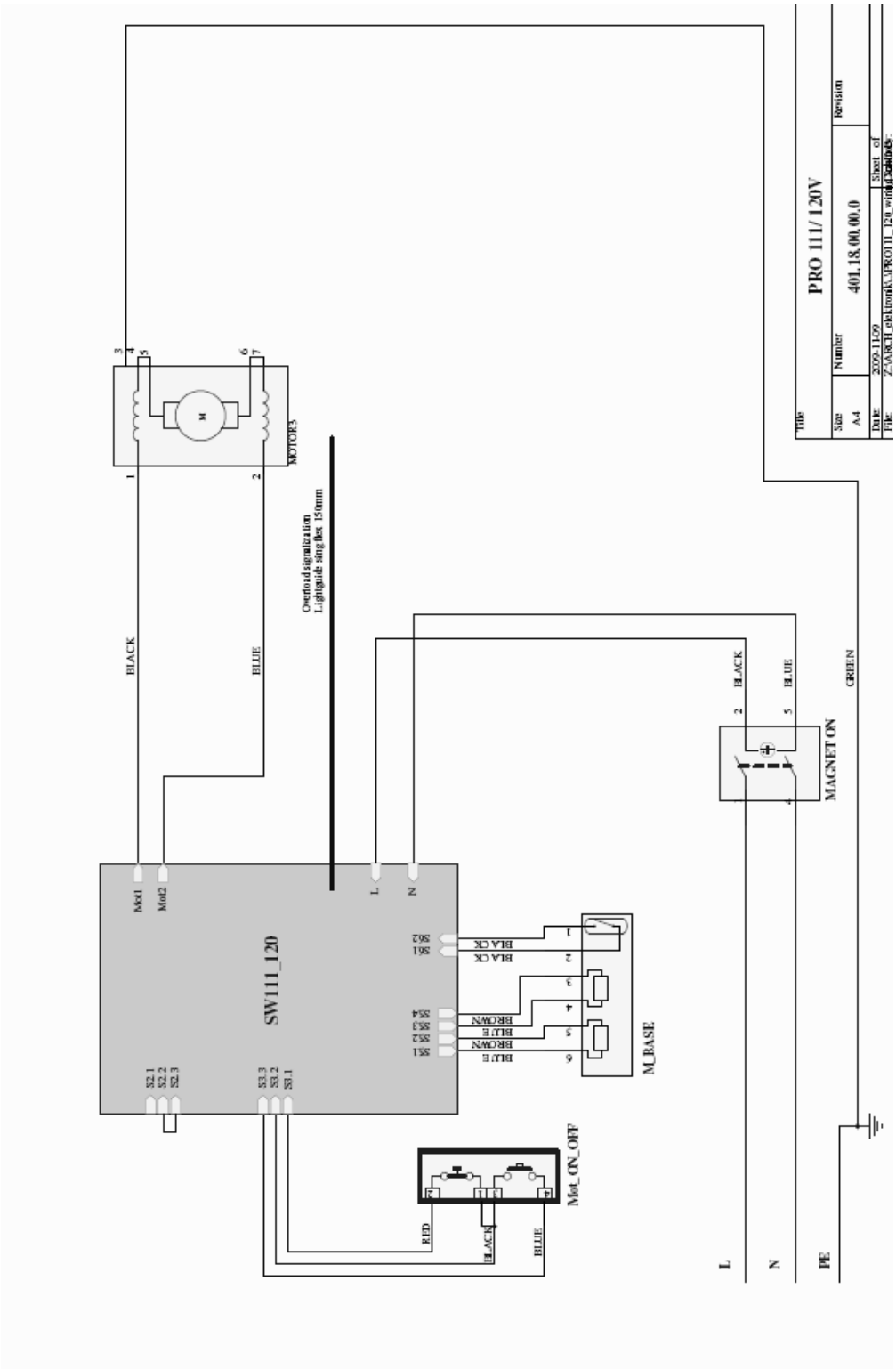
		ARBOR ASSY AMT4-U-19 /4-3 (MB4.11)	
ITEM	**JEI Part #**	**DESCRIPTION**	**Q-TY**
11.1	MB4.11.1	ARBOR BODY AMT4-U-19 /4-3	1
11.2	MB4.11.2	PLUNGER	1
11.3	MB4.11.3	WASHER D=18,8x10x1	1
11.4	MB4.11.4	SEAL	1
11.5	MB4.11.5	HEX SET SCREW-M10X10	2
11.6	MB4.11.6	INTERNAL RETAINING RING 19W	1
11.7	MB4.11.7	SPRING 1,6x12,4x159	1



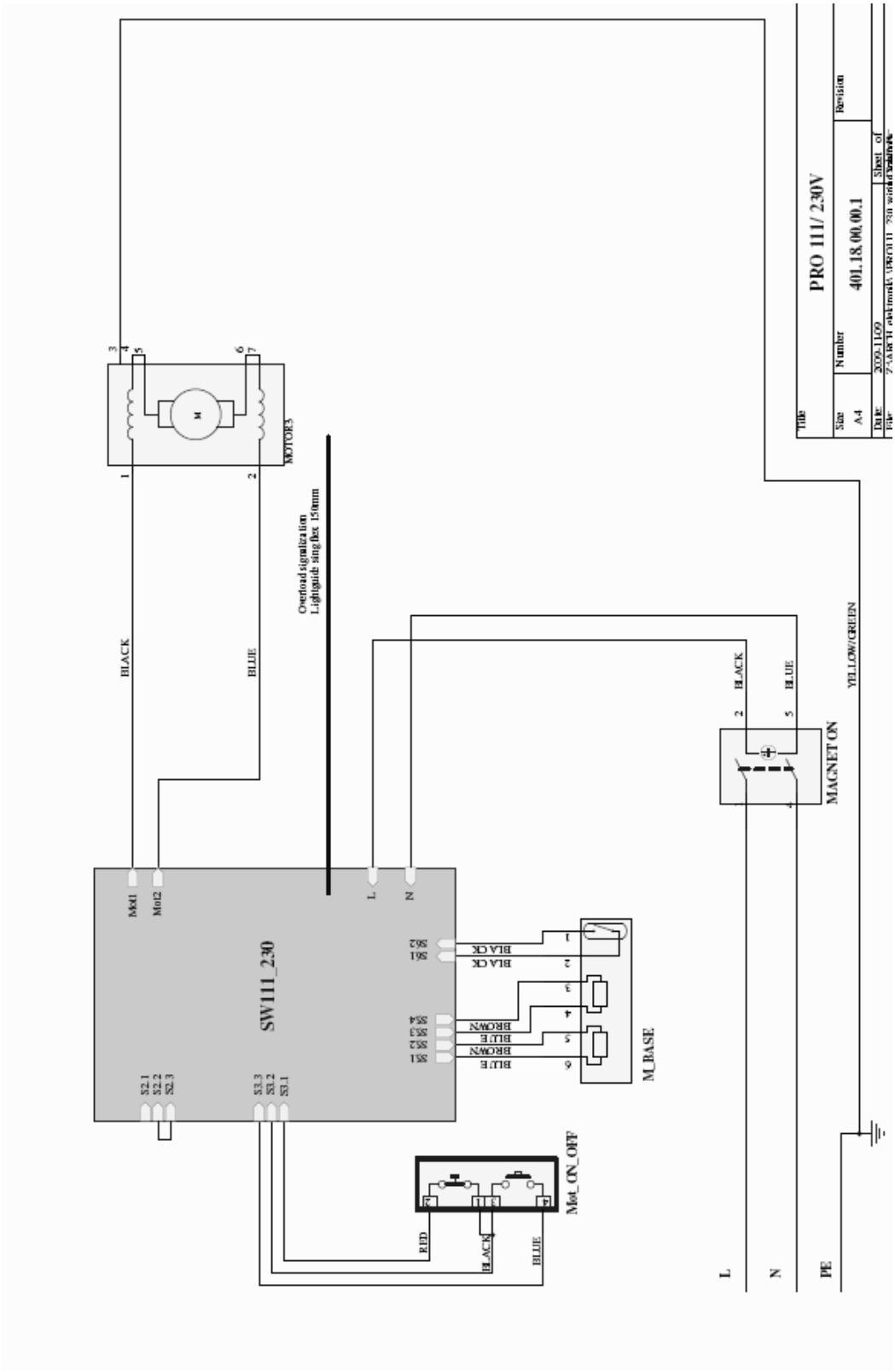
Drilling Machine Mag Beat 4

VI. ELECTRICAL DIAGRAM

1. Electrical diagram MagBeast 4 /120V



2. Electrical diagram MagBeast 4 /230V



JEI Six (6) month limited warranty

JEI Solutions warrants the Magbeast 4 Drilling machine to be free of defects in material and workmanship under normal use for a period of six months from date of purchase. **This warranty does not cover damage or wear which arise from misuse, accident, tampering or any other causes not related to defects in workmanship or materials.** This warranty is conditioned upon the prepaid return of the Magbeast 4 Machine to JEI Solutions Ltd, Unit 30, Newhallhey Business Park, Rossendale, Lancs. Or our International representative for our international customers for examination and verification of the claimed defects. If defect is verified, JEI Solutions Ltd will replace, free of charge, any defective parts. If inspection of the machine does not disclose any defect in workmanship or materials, the original purchaser will be notified by JEI Solutions Ltd, or its representative, of the costs of necessary repairs. If repairs are authorized, repairs will be made and the costs of repair and return transportation will be billed through the customer's distributor.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES (EXPRESSED OR IMPLIED) INCLUDING WARRANTY OF MERCHANT ABILITY OR FITNESS FOR A PARTICULAR PURPOSE, SPECIAL AND CONSEQUENTIAL ARE EXPRESSLY EXCLUDED AND DENIED.

JEI Solutions
Built for Industry

JEI SOLUTIONS LTD
UNIT 30, NEWHALLHEY BUSINESS PARK
NEWHALLHEY RD, RAWTENSTALL
ROSSENDALE, LANCASHIRE
BB4 6HR
TEL: 01706 229490 FAX: 01706 830496

EMAIL: service@jeisolutions.co.uk Website: www.jeiuk.com