

# **BX-840VT-M**

VARIABLE SPEED DRILL PRESS

VARIABLE-GESCHWINDIGKEITSBOHRMASCHINE

PRESS PRESURE A VITESSE DE VITESSE VARIABLE



[www.promac.fr](http://www.promac.fr)

**PROMAC®**



## INTRODUCTION

*The quality and reliability of the components assembled on a PROMAC machine guarantee near perfect functioning, free from problems, even under the most demanding working conditions. However, if a situation arises, refer to the manual first. If a solution cannot be found, contact the distributor where you purchased our product. Make sure you have the serial number and production year of the machine (stamped on the nameplate). For replacement parts refer to the assembly numbers on the parts list drawings.*

*Our technical staff will do their best to help you get your machine back in working order.*

### In this manual you will find: (when applicable)

- Safety procedures
- Correct installation guidelines
- Description of the functional parts of the machine
- Capacity charts
- Setup and start-up instructions
- Machine operation
- Scheduled maintenance
- Parts lists

## GENERAL NOTES

After receiving your equipment remove the protective container. Do a complete visual inspection, and if damage is noted, **photograph it for insurance claims** and contact your carrier at once, requesting inspection. Also contact PROMAC and inform them of the unexpected occurrence. Temporarily suspend installation.

Take necessary precautions while loading / unloading or moving the machine to avoid any injuries.

Your machine is designed and manufactured to work smoothly and efficiently. Following proper maintenance instructions will help ensure this. Try and use original spare parts, whenever possible, and most importantly;

**DO NOT** overload the machine or make any modifications.



**Note:** This symbol refers to useful information throughout the manual.



## IMPORTANT

### PLEASE READ THIS OPERATORS MANUAL CAREFULLY

It contains important safety information, instructions, and necessary operating procedures.

The continual observance of these procedures will help increase your production and extend the life of the equipment.



## SAFETY INSTRUCTIONS

### LEARN TO RECOGNIZE SAFETY INFORMATION

This is the safety alert symbol. When you see this symbol on your machine or in this manual,

**BE ALERT TO THE POTENTIAL FOR PERSONAL INJURY!**

Follow recommended precautions and safe operating practices.



### UNDERSTAND SIGNAL WORDS

A signal word – **DANGER**, **WARNING**, or **CAUTION** – is used with the safety alert symbol.

**NOTICE**, which is not related to personal injury, is used without a symbol.

**DANGER:** Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

**WARNING:** Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

**CAUTION:** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

**NOTICE:** Indicates a situation which, if not avoided, could result in property damage.



**DANGER**



**WARNING**



**CAUTION**



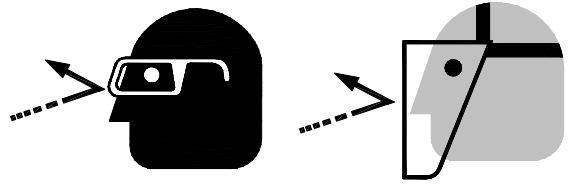
**NOTICE**

**SAVE THESE INSTRUCTIONS.**

**Refer to them often and use them to instruct others.**

**PROTECT EYES**

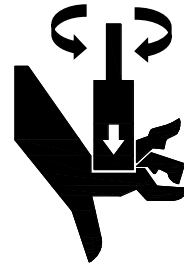
Wear safety glasses or suitable eye protection when working on or around machinery.

**PROTECT AGAINST NOISE**

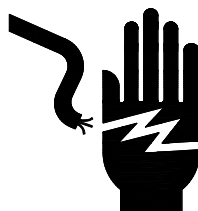
Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear suitable hearing protective devices such as ear muffs or earplugs to protect against objectionable or uncomfortable loud noises.

**BEWARE OF PIERCING POINTS AND CUTTING HAZARD**

**NEVER** place hands, fingers, or any part of your body on or near rotating tooling. This tooling can be extremely dangerous if you do not follow proper safety procedures. **Keep hand at least 6 inches (150mm) from the tooling while operating.**

**HIGH VOLTAGE**

**USE CAUTION IN HIGH VOLTAGE AREAS.**  
**DO NOT** assume the power to be off.  
**FOLLOW PROPER LOCKOUT PROCEDURES.**

**ENTANGLEMENT HAZARD – ROTATING SPINDLE**

Contain long hair, **DO NOT** wear jewelry or loose fitting clothing.



## **EMERGENCY STOP BUTTON**

In the event of incorrect operation or dangerous conditions, the machine can be stopped immediately by pressing the **E-STOP** button. Twist the emergency stop button clockwise (cw) to reset.

**Note:** Resetting the E-Stop will not start the machine.



## **SAFETY PRECAUTIONS**

Metal working can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result.

Safety equipment such as guards, hold-downs, safety glasses, dust masks and hearing protection can reduce your potential for injury. But even the best guard will not make up for poor judgment, carelessness or inattention.

**Always use common** sense and exercise **caution** in the workshop. If a procedure feels dangerous, don't try it.

**REMEMBER:** Your personal safety is your responsibility.

**WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY**

## **Dear Valued Customer:**

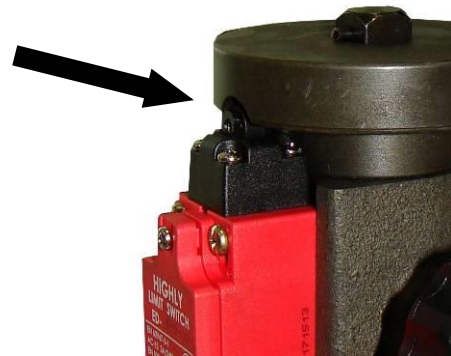
- All PROMAC machines should be used only for their intended use.
- PROMAC does not recommend or endorse making any modifications or alterations to a PROMAC machine. Modifications or alterations to a machine may pose a substantial risk of injury to the operator or others and may do substantial damage to the machine.
- Any modifications or alterations to a PROMAC machine will invalidate the machine's warranty.

## **PLEASE ENJOY YOUR PROMAC MACHINE! ....PLEASE ENJOY IT SAFELY!**

1. **FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE MACHINE.** Learn the machine's application and limitations as well as the specific hazards.
2. **Only trained and qualified personnel can operate this machine.**
3. **Make sure guards are in place and in proper working order before operating machinery.**
4. **Remove any adjusting tools.** Before operating the machine, make sure any adjusting tools have been removed.
5. **Keep work area clean.** Cluttered areas invite injuries.
6. **Overloading machine.** By overloading the machine, you may cause injury from flying parts. **DO NOT** exceed the specified machine capacities.
7. **Dressing material edges.** Always chamfer and deburr all sharp edges.
8. **Do not force tool.** Your machine will do a better and safer job if used as intended. **DO NOT** use inappropriate attachments in an attempt to exceed the machine's rated capacity.
9. **Use the right tool for the job. DO NOT** attempt to force a small tool or attachment to do the work of a large industrial tool. **DO NOT** use a tool for a purpose for which it was not intended.
10. **Dress appropriately. DO NOT** wear loose fitting clothing or jewelry as they can be caught in moving machine parts. Protective clothing and steel toe shoes are recommended when using machinery. Wear a restrictive hair covering to contain long hair.
11. **Use eye protection.** Always wear ISO approved protective eye wear when operating machinery. Wear a full-face shield if you are producing metal filings. Eye wear shall be impact resistant, protective safety glasses with side shields which comply with ANSI Z87.1 specification. Use of eye wear which does not comply with ANSI Z87.1 specification could result in severe injury from breakage of eye protection.
12. **Do not overreach.** Maintain proper footing and balance at all times. **DO NOT** reach over or across a running machine.
13. **Stay alert.** Watch what you are doing and use common sense. **DO NOT** operate any tool or machine when you are tired.
14. **Check for damaged parts.** Before using any tool or machine, carefully check any part that appears damaged. Check for alignment and binding of moving parts that may affect proper machine operation.
15. **Observe work area conditions. DO NOT** use machines or power tools in damp or wet locations. Do not expose to rain. Keep work area well lighted. **DO NOT** use electrically powered tools in the presence of flammable gases or liquids.
16. **Keep children away.** Children must never be allowed in the work area. **DO NOT** let them handle machines, tools, or extension cords.
17. Keep visitors a safe distance from the work area.
18. **Store idle equipment.** When not in use, tools must be stored in a dry location to inhibit rust. Always lock up tools and keep them out of reach of children.
19. **DO NOT operate machine if under the influence of alcohol or drugs.** Read warning labels on prescriptions. If there is any doubt, **DO NOT** operate the machine.
20. **Turn off** power before checking, cleaning, or replacing any parts.
21. Be sure **all** equipment is properly installed and grounded according to national, state, and local codes.
22. Inspect power and control cables periodically. Replace if damaged or bare wires are exposed.  
**Bare wiring can kill!** **DO NOT** touch live electrical components or parts.
23. **DO NOT** bypass or defeat any safety interlock systems.

## **Additional Safety Precautions**

- Turn off main power to the machine and wait for the drill bit, or cutting tool to stop turning before removing debris, removing or securing the piece part, or changing the position of the worktable.
- Never expose your hands or limbs to the cutting area while the machine is operating.
- When the machine is NOT in use, the drill bit or tool should NOT be rotating.
- Never leave the machine running while unattended. Turn the power OFF. Do not leave the machine until the spindle comes to a complete stop.
- Hold the piece part firmly against the table. DO NOT attempt to drill a piece part that does not have a flat surface against the table, or that is not secured by a vise. Prevent the piece part from rotating by clamping it to the table or by securing it against the drill press column.
- Never start the machine before clearing the table of all objects (tools, scrap pieces, etc.)
- Properly lock the drill bit, cutting tool, or sanding drum in the chuck before operating the machine.
- Check safety equipment, such as safety covers, emergency stop buttons, safety mats, railings, light booms, ramps, and warning signs.
- Make sure electrical cables are well protected from damage. Check insulation periodically for wear.
- Never use the drill press without the swing-away safety guard.
- Make sure the actuator of the limit switch is seated in the detent of the round pad or the machine will not run.
- Do not remove any warning signs.



## TECHNICAL SPECIFICATIONS

|                                           |                                             |
|-------------------------------------------|---------------------------------------------|
| <b><u>Motor and Electricals:</u></b>      |                                             |
| Power Input Requirements                  | 240V, 1Ph, 50hz, 10A                        |
| Motor Type                                | TEFC Induction                              |
| Motor Power                               | 2HP (1.5kw), 240V, 3ph, 50hz, 6.6A, 1720rpm |
| Starting Amps                             | 9.2A                                        |
| Running Amps (No Load)                    | 1.7A                                        |
| Inverter                                  | M-Type                                      |
| Power Cable                               | 14awg, 6 Ft                                 |
| Power Plug                                | Not included                                |
| Recommended Circuit and Fuse/Breaker Size | 20A                                         |
| Sound Emission Without Load               | 70db                                        |
| Coolant Pump                              | 1/8HP, 240V 1ph, 50hz, 0.4A                 |
| <b><u>Capacities:</u></b>                 |                                             |
| Drilling Capacity, Cast Iron              | 1.25" (31.75mm)                             |
| Drilling Capacity, Mild Steel             | 1" (25.4mm)                                 |
| Tapping Capacity, Cast Iron               | .75" (19.05mm)                              |
| Tapping Capacity, Mild Steel              | .625" (15.875mm)                            |
| Spindle to Table Maximum Distance         | 36.41" (925mm)                              |
| Spindle to Base Maximum Distance          | 48.22" (1225mm)                             |
| Spindle to Column Maximum Distance        | 10.4375" (265.1mm)                          |
| Coolant Capacity                          | 2 Gal. (7.5L)                               |
| <b><u>Spindle:</u></b>                    |                                             |
| Spindle Taper                             | MT-4                                        |
| Spindle Speed, Low Range                  | Variable, 85 – 540 rpm                      |
| Spindle Speed, High Range                 | Variable, 245 – 2000 rpm                    |
| Spindle Travel                            | 5.9" (150mm)                                |
| Rotation                                  | Fwd/Rev (Rev = Tapping Only)                |
| <b><u>Table and Column:</u></b>           |                                             |
| Table Size                                | 22" x 18.75" (559 x 476mm)                  |
| Table Working Surface                     | 18.125" x 14.25" (460 x 375mm)              |
| <b><u>Table Travel:</u></b>               |                                             |
| Without Rack Adjustment                   | 15" (381mm)                                 |
| Maximum Travel with Rack Adjustment       | 20" (508mm)                                 |
| T-Slot Number                             | 2                                           |
| T-Slot Size                               | .625" [5/8"] (15.857mm)                     |
| T-Slot Centers                            | 7.4375" (188.1mm)                           |

## TECHNICAL SPECIFICATIONS

|                                          |                                            |
|------------------------------------------|--------------------------------------------|
| Table Weight Capacity                    | 154lbs (70kg)                              |
| Column Diameter                          | 4.52" (115mm)                              |
| <b>Base:</b>                             |                                            |
| Base Size                                | 27" x 19" (686 x 483mm)                    |
| Base Working Surface                     | 14-3/4 X 11-13/16 In. (375 X 300mm)        |
| T-Slot Number                            | 2                                          |
| T-Slot Size                              | .625" [5/8"] (15.857mm)                    |
| <b>Main Materials:</b>                   |                                            |
| Head                                     | Cast Iron, Steel Cover                     |
| Table and Base                           | Cast Iron                                  |
| Spindle and Quill                        | Steel                                      |
| Column                                   | Steel                                      |
| <b>Dimensions:</b>                       |                                            |
| Assembled Machine Dimensions (L x W x H) | 30.3" x 26.5" x 71.4" (973 x 673 x 1814mm) |
| Shipping Crate Dimensions (L x W x H)    | 60" x 44" x 82" (1524 x 1118 x 2083mm)     |
| <b>Weights:</b>                          |                                            |
| Net Weight                               | 686lbs (311kg)                             |
| Shipping Weight                          | 847lbs (385kg)                             |

## TECHNICAL SUPPORT

Our Technical Support department can be reached at **contact@toolfrance.com**. Tech Support handles questions on machine setup, schematics, warranty issues, and individual parts needs.

For specific application needs or future machine purchases contact the Sales Department at:

**contact@toolfrance.com**



**Note:** The photos illustrations using in this manual are representative only and may not depict the actual color, labeling or accessories and may be intended to illustrate technique only.



**Note:** The specifications and dimensions presented here are subject to change without prior notice due to improvements of our products.

### **UNPACKING AND CHECKING CONTENTS**

Your PROMAC machine is shipped complete. Separate all parts from the packing material and check each item carefully. Make certain all items are accounted for before discarding any packing material.

**WARNING: SUFFOCATION HAZARD!** Immediately discard any plastic bags and packing materials to eliminate choking and suffocation hazards to children and animals.

If any parts are missing, **DO NOT** place the machine into service until the missing parts are obtained and installed correctly.

## Cleaning

**WARNING: DO NOT USE** gasoline or other petroleum products to clean the machine. They have low flash points and can explode or cause fire.

**CAUTION:** When using cleaning solvents work in a well-ventilated area. Many cleaning solvents are toxic if inhaled.

Your machine may be shipped with a rustproof waxy coating and/or grease on the exposed unpainted metal surfaces. Fully and completely remove this protective coating using a degreaser or solvent cleaner. Moving items will need to be moved along their travel path to allow for cleaning the entire surface. For a more thorough cleaning, some parts will occasionally have to be removed. **DO NOT USE** acetone or brake cleaner as they may damage painted surfaces.

Follow manufacturer's label instructions when using any type of cleaning product. After cleaning, wipe unpainted metal surfaces with a light coating of quality oil or grease for protection.



**Important:** This waxy coating is **NOT** a lubricant and will cause the machine to stick and lose performance as the coating continues to dry.

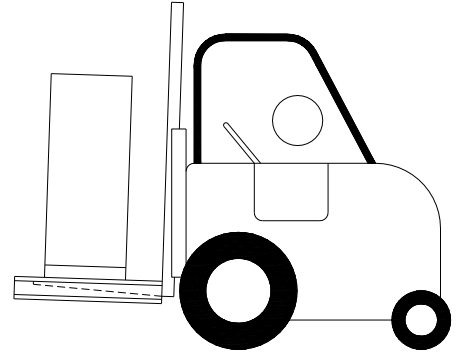


## **TRANSPORTING AND LIFTING**

**NOTICE:** *Lifting and carrying operations should be carried out by skilled workers, such as a truck operator, crane operator, etc. If a crane is used to lift the machine, attach the lifting chain carefully, making sure the machine is well balanced.*

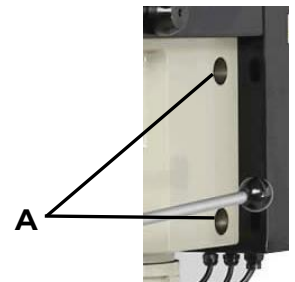
### **Follow these guidelines when lifting with truck or trolley:**

- The lift truck must be able to lift at least 1.5 – 2 times the machines gross weight.
- Make sure the machine is balanced. While transporting, avoid rough or jerky motion, and maintain a safe clearance zone around the transport area.
- Use a fork lift with sufficient lifting capacity and forks that are long enough to reach the complete width of the machine.
- Remove the securing bolts that attach the machine to the pallet.
- Approaching the machine from the side, lift the machine on the frame taking care that there are no cables or pipes in the area of the forks.
- Move the machine to the required position and lower gently to the floor.
- Level the machine so that all the supporting feet are taking the weight of the machine and no rocking is taking place.



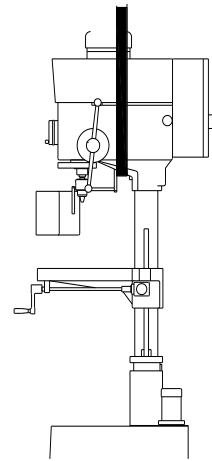
### **Follow these guidelines when lifting crane or hoist:**

- Always lift and carry the machine with the lifting straps around the head of the machine.
- Take proper precautions for handling and lifting. Remove the coolant valve bracket from the head to avoid damaging it. **DO NOT** let the lift strap damage the guard limit switch or guard support bracket.
- Check to see that the machine head is secured to the column using a 10mm hex wrench on bolts (A).



**IMPORTANT:** Failure to lock the machine head to the column may result in personal injury or machine damage.

- Use lift equipment such as straps, chains, capable of lifting 1.5 to 2 times the weight of the machine.
- Take proper precautions for handling and lifting.
- Check if the load is properly balanced by lifting it an inch or two.
- Lift the machine, avoiding sudden accelerations or quick changes of direction.
- Locate the machine where it is to be installed, and lower slowly until it touches the floor.



## **INSTALLATION**

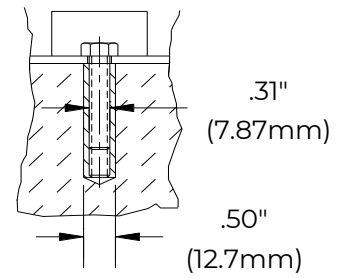
### **IMPORTANT:**

Consider the following when looking for a suitable location to place the machine:

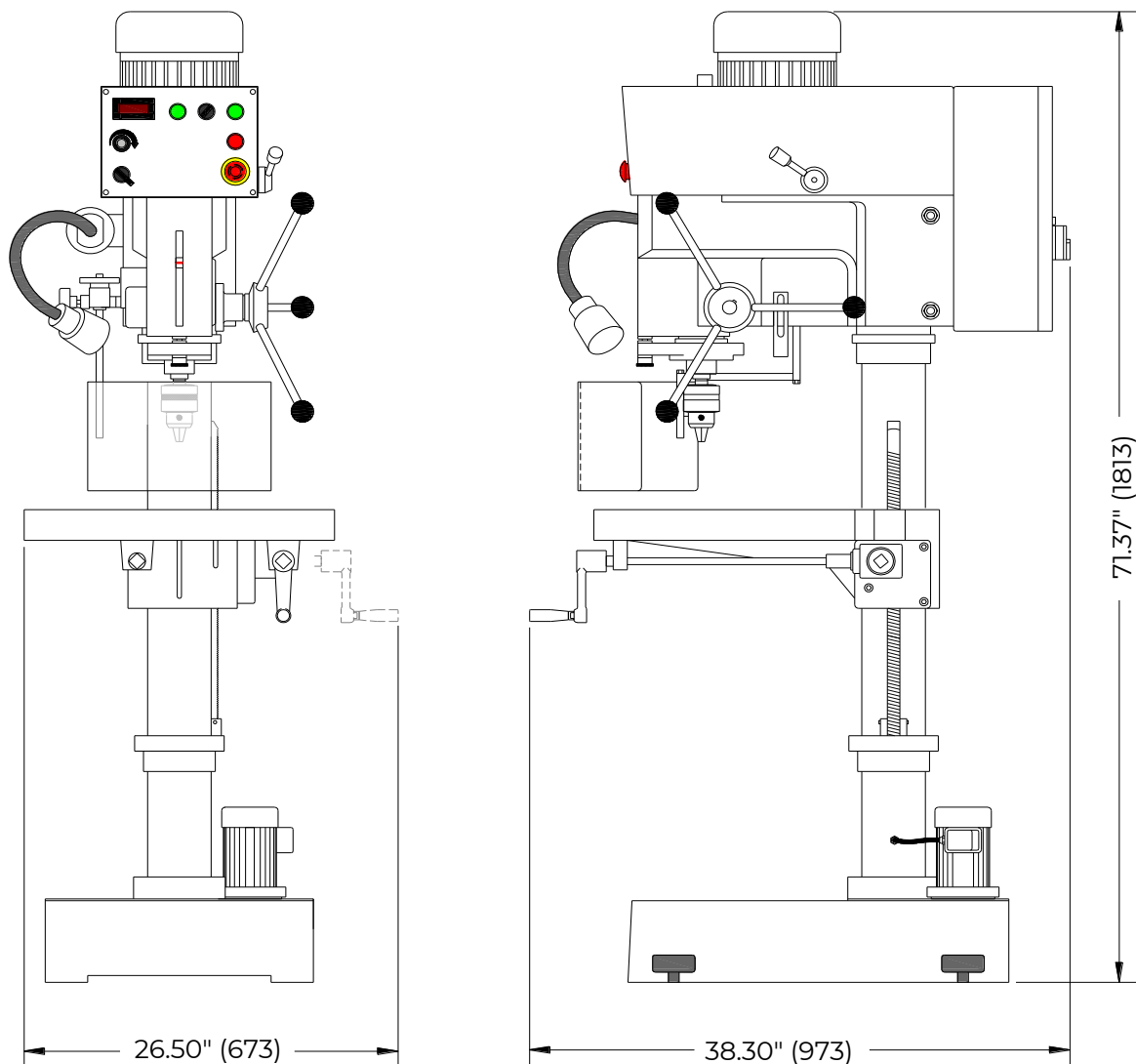
- Overall weight of the machine.
- Weight of material being processed.
- Sizes of material to be processed through the machine.
- Space needed for auxiliary stands, worktables, or other machinery.
- Clearance from walls and other obstacles.
- Maintain an adequate working area around the machine for safety.
- Have the work area well illuminated with proper lighting.
- Keep the floor free of oil and make sure it is not slippery.
- Remove scrap and waste materials regularly, and make sure the work area is free from obstructing objects.
- If long lengths of material are to be fed into the machine, make sure that they will not extend into any aisles.
- **LEVELING:** The machine should be sited on a level, concrete floor. Provisions for securing it should be in position prior to placing the machine. The accuracy of any machine depends on the precise placement of it to the mounting surface.
- **FLOOR:** This tool distributes a large amount of weight over a small area. Make certain that the floor is capable of supporting the weight of the machine, work stock, and the operator. The floor should also be a level surface. If the unit wobbles or rocks once in place, be sure to eliminate by using shims.
- **WORKING CLEARANCES:** Take into consideration the size of the material to be processed. Make sure that you allow enough space for you to operate the machine freely.
- **POWER SUPPLY PLACEMENT:** The power supply should be located close enough to the machine so that the power cord is not in an area where it would cause a tripping hazard. Be sure to observe all electrical codes if installing new circuits and/or outlets.

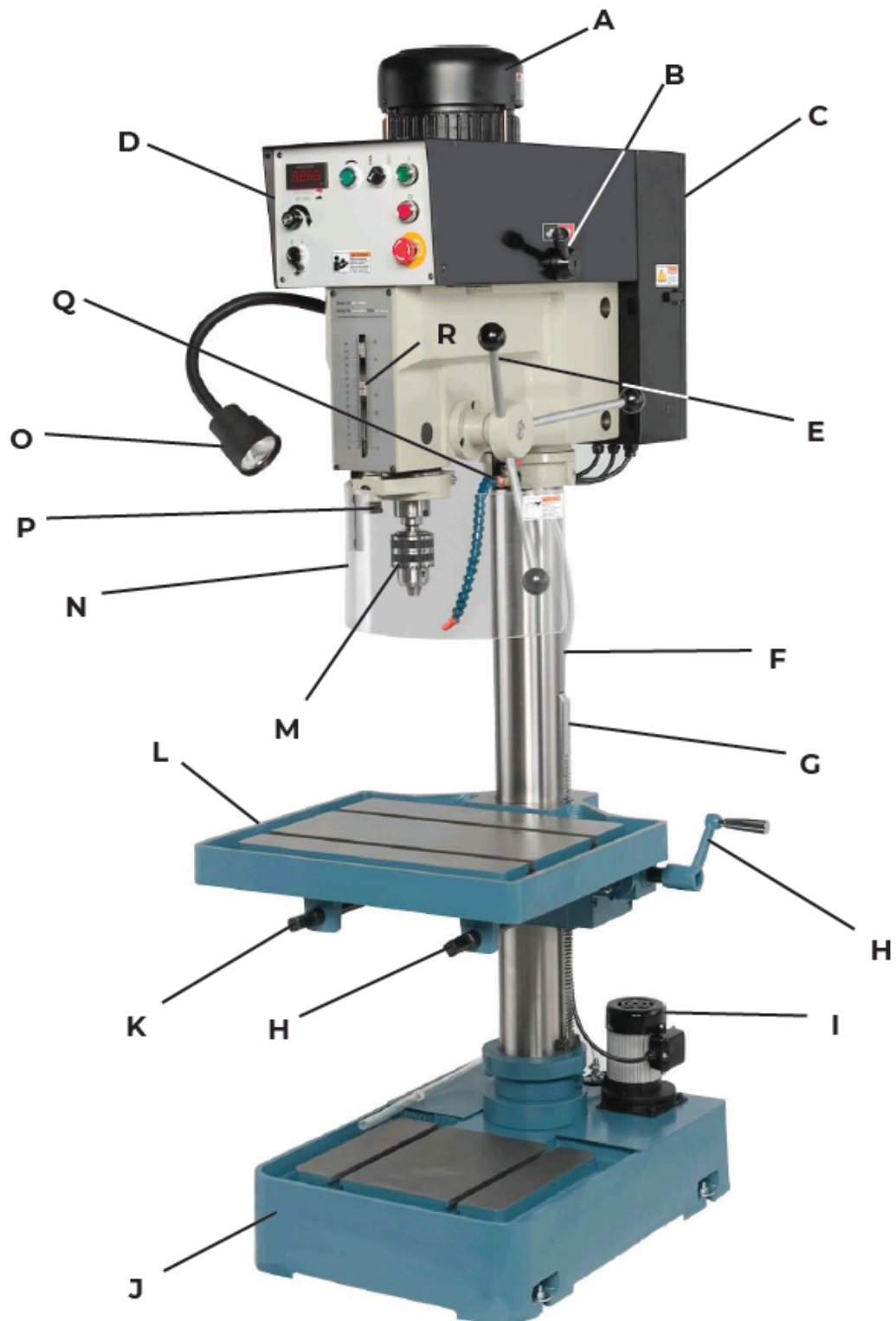
### Anchoring the Machine

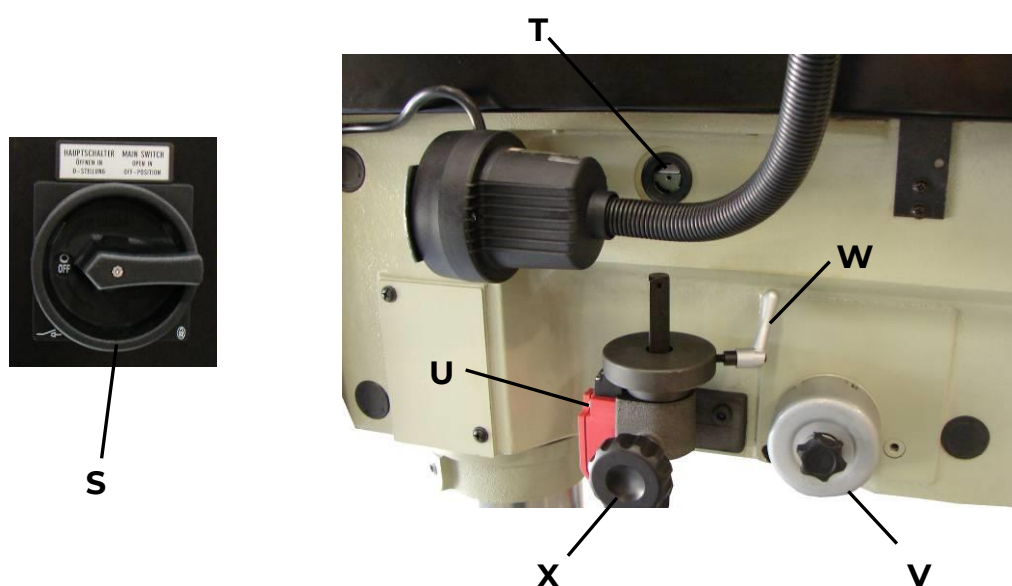
- Once positioned, anchor the machine to the floor, as shown in the diagram, using bolts and expansion plugs or sunken tie rods that connect through holes in the base of the stand.



### OVERALL DIMENSIONS

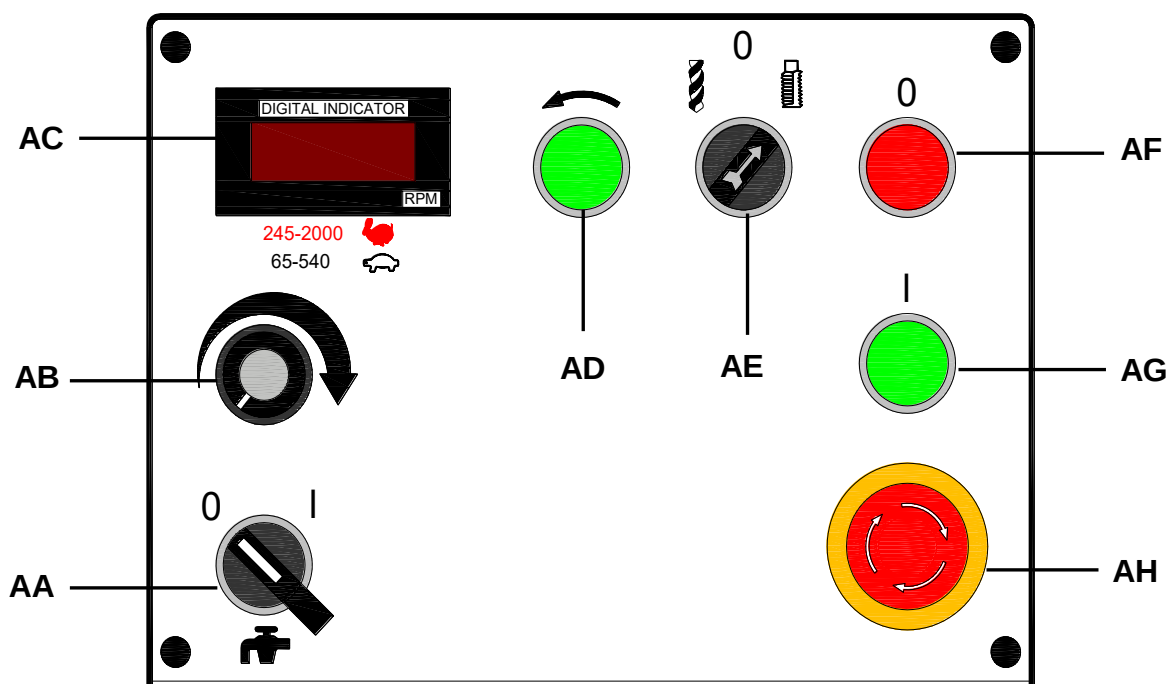


GETTING TO KNOW YOUR MACHINE



|   |                        |                                                                                                      |
|---|------------------------|------------------------------------------------------------------------------------------------------|
| A | Motor                  | Provides power to the chuck                                                                          |
| B | 2-Speed Hi-Lo          | Changes spindle speed RPM. <b>DO NOT</b> change spindle RPM until the spindle has stopped completely |
| C | Electrical Enclosure   | Houses the electrical components                                                                     |
| D | Control Panel          | Houses the operator's controls                                                                       |
| E | Down-Feed Handle       | Used by the operator to move the quill down and up.                                                  |
| F | Column                 | Supports the table and head                                                                          |
| G | Gear Rack              | Engages the table for height adjustment                                                              |
| H | Handle                 | Table height adjustment at two locations                                                             |
| I | Coolant Pump           | Pumps coolant up to the chuck                                                                        |
| J | Base                   | Support for drill press and coolant reservoir                                                        |
| K | Worktable Lock         | Secures table when pivoting on column                                                                |
| L | Worktable              | Adjustable table with T-slots                                                                        |
| M | Chuck                  | Holds various tooling for drilling and tapping                                                       |
| N | Safety Guard           | Adjustable guard with limit switch shut-off                                                          |
| O | Work Light             | Provides adequate lighting for work area                                                             |
| P | Depth Scale Lock       | Locks the position of the depth scale                                                                |
| Q | Coolant Shut-Off Valve | Controls volume of coolant                                                                           |
| R | Depth Scale            | Use for setting the depth in manual mode                                                             |
| S | Main Power Disconnect  | Turns main power ON-OFF to the drill press                                                           |
| T | Oil Level Gauge        | Shows current level of gear oil                                                                      |
| U | Limit Switch           | Stops machine when guard is swung away                                                               |

|   |                       |                                            |
|---|-----------------------|--------------------------------------------|
| V | Spring Cover          | Tensions down-feed handles (DO NOT REMOVE) |
| W | Guard Knob            | Use to hold guard after pivoting sideways  |
| X | Guard Adjustment Knob | Change guard height and lock with knob     |



|    |                                    |                                                                                                                |
|----|------------------------------------|----------------------------------------------------------------------------------------------------------------|
| AA | Coolant Pump On/Off Switch         | Starts the coolant flow for cutting.                                                                           |
| AB | Spindle Speed Knob                 | Changes the speed of spindle rotation.                                                                         |
| AC | Digital Indicator                  | Displays the rate of spindle rotation in RPM.                                                                  |
| AD | Reverse Button                     | Reverses the spindle rotation for tapping only.                                                                |
| AE | Drilling / Tapping Selector Switch | Selects the mode of operation: drilling or tapping.                                                            |
| AF | Stop Button                        | Stops the spindle motor.                                                                                       |
| AG | Start Button                       | Starts the spindle motor. A 10 second wait is required before a machine restart or the machine will not start. |
| AH | Emergency Stop Button              | Stops all machine functions. Turn the switch clockwise (cw) to reset the switch.                               |

## High / Low Gear Selector

A gear transmission lever that selects Hi or Low speeds.



**IMPORTANT:** Use only while the machine is stopped.  
Failure to do so will cause damage to the gear system.



## Drill Head

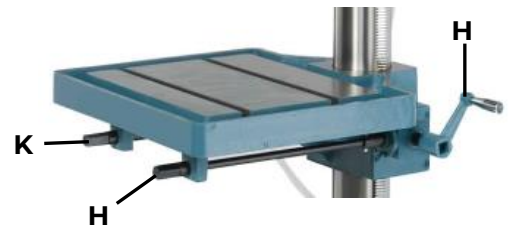
The Drill Head attaches to the top of the column. It houses the motor, spindle, controls, and transfer mechanisms. Attached to it is the electrical enclosure, the protective guard, the work light, and the coolant valve with nozzle.



## Worktable

The sturdy worktable can be positioned at varying heights and rotated 180° in either direction. It has T-slots to allow the use of 1/2" or M14 bolts.

Below the worktable are three crankshafts. The two crankshafts (H) control the up /down motion of the table. Always unlock the table with crankshaft (K) before changing the height or rotating it. Then lock the worktable to secure in position. The one handle works for all three crankshafts.



## Machine Base

The machine base houses the coolant reservoir and supports the coolant pump (I). The coolant is pumped up to a nozzle where a valve controls the flow onto the tool. The coolant / lubricant enters the table drain and flows back to the reservoir.



## **ELECTRICAL**

**ATTENTION: HAVE ELECTRICAL UTILITIES CONNECTED TO MACHINE BY A CERTIFIED ELECTRICIAN!**

**Your PROMAC Machine is **

**Check if the available power supply is the same as required by the machine  
(consult nameplate on machine)**

**WARNING: Make sure the grounding wire (green) is properly connected to avoid electric shock. DO NOT switch the position of the green grounding wire if any electrical plug wires are switched during hookup.**

## **Power Specifications**

Your tool is wired for 240 volts, 50Hz alternating current. Before connecting the tool to the power source, make sure the machine is cut off from power source. Before switching on the power, you must check the voltage and frequency of the power to see if they meet with the requirement, the allowed range for the voltage is  $\pm 5\%$ , and for the frequency is  $\pm 1\%$ .

## **Considerations**

- Observe local electrical codes when connecting the machine.
- The circuit should be protected with a time delay fuse or circuit breaker with a amperage rating slightly higher than the full load current of machine.
- A separate electrical circuit should be used for your tools. Before connecting the motor to the power line, make sure the switch is in the "OFF" position and be sure that the electric current is of the same characteristics as indicated on the tool.
- All line connections should make good contact. Running on low voltage will damage the motor.
- In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

**WARNING: In all cases, make certain the receptacle in question is properly grounded. If you are not sure, have a qualified electrician check the receptacle.**

- Improper connection of the equipment-grounding conductor can result in risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.
- Check with qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.
- Repair or replace damaged or worn cord immediately.

### **Power cord connection:**

1. Turn the main disconnect switch on the control panel to the OFF position.
2. Unwrap the power cord and route the cord away from the machine toward the power supply.
  - a. Route the power cord so that it will NOT become entangled in the machine in any way.
  - b. Route the cord to the power supply in a way that does NOT create a trip hazard.
3. Connect the power cord to the power supply and check that the power cord has not been damaged during installation.
4. When the machine is clear of any obstruction. The main power switch may be turn ON to test the operation.
5. Turn the switch OFF when the machine is not in operation.

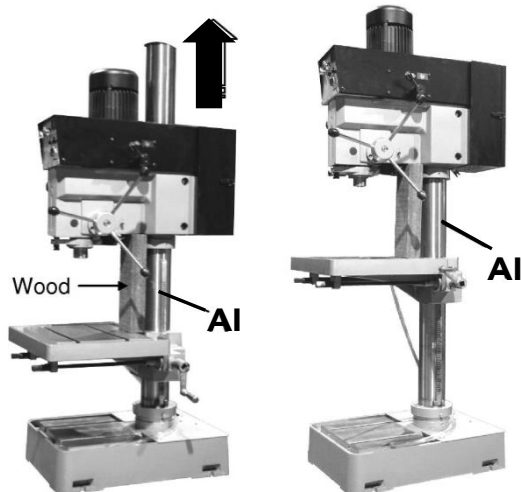
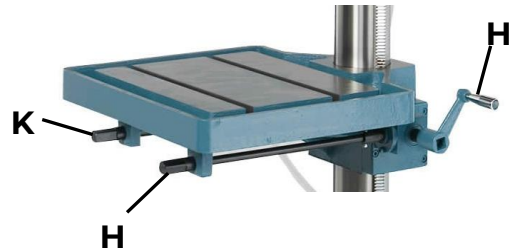
## SET UP AND ADJUSTMENTS

### Adjusting the Machine Head Height

**WARNING: Failure to lock the collar can result in personal injury or damage to the machine.**

The machine head is lowered for shipping and must be raised before operating.

1. Unlock the table by turning crankshaft (K) counterclockwise (ccw).
2. Place a piece of wood between the table and the machine head. (DO NOT place the wood under the collar (AJ)).
3. Raise the table just enough to hold the block of wood in place.
4. Loosen the two bolts (Z) on the machine head counterclockwise (ccw) with a socket wrench.
5. Turning either crankshaft (H) clockwise (cw) will raise the head.
6. STOP when the top of the machine head is flush with the top of the column. DO NOT allow the column to be below the top of the head.
7. Using the wrench, securely lock the two bolts (Z).
8. Now loosen the two setscrews on collar (AJ), slide it up to the machine head, and tighten the setscrews.
9. Once the machine head is safely secured, remove the block of wood.
10. To lower the head, reverse the above steps.

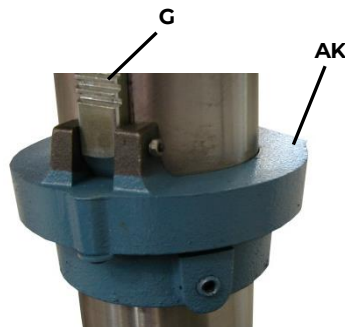
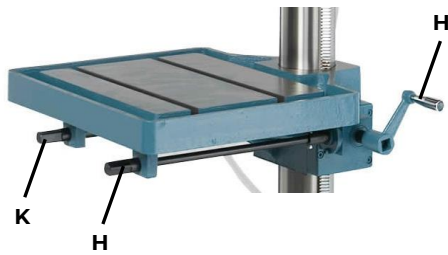


## Adjusting the Gear Rack Height

**WARNING: Failure to lock the collar can result in personal injury or damage to the machine.**

To raise the table to an adequate working height requires raising of the column gear rack.

1. Lock the table by turning crankshaft (K) clockwise (cw).
2. Unlock column bearing (AK) by loosening the two setscrews.
3. Raise the gear rack (G) by turning crankshaft (H) counterclockwise (ccw).
4. Lock column bearing (AK) by tightening the two setscrews.
5. After unlocking, the table can now be raised or lowered for normal operation.



## OPERATION

**CAUTION:** Always wear proper eye protection with side shields, safety footwear, and leather gloves to protect from burrs and sharp edges. When handling large heavy materials make sure they are properly supported.

### Drilling

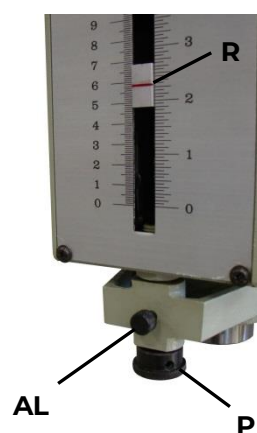
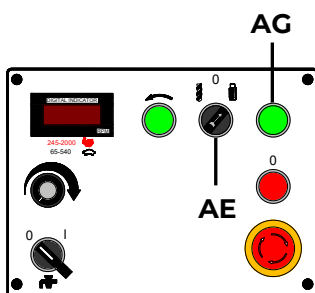
1. Load and secure the piece part to the table.
2. Secure drill bit in the chuck.
3. Unlock the table, adjust to the desired height, and relock the table.
4. Adjust the safety guard up or down as needed.
5. Select the transmission mode with handle (B)



**Important: DO NOT** change transmission spindle selection until the spindle has stopped completely. Switching transmission with the motor on and spindle turn can damage gears.



6. Select drilling mode with selector switch (AE). Selector switch (AE) shown in drill position.
7. Set the drill bit depth to zero position by lowering it to the top surface of the piece part, using the down-feed handles.
8. While holding the zero position, turn the depth scale lock knob (AL) counterclockwise (ccw) to release depth stop knob (P).
9. Rotate Knob (P) to set the drill depth on the scale with indicator (R).
10. Re-tighten lock knob (AL).
11. Start machine by pressing start button (AG).
12. Turn on the coolant selector switch (AA).
13. Begin drilling using the down-feed handles to lower the chuck.



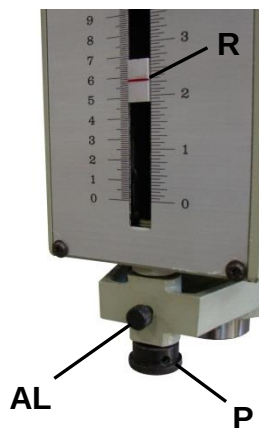
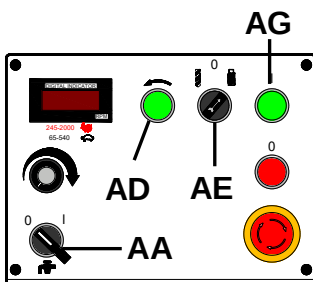
## Tapping

1. Load and secure the piece part to the table.
2. Secure tapping tool in the chuck.
3. Unlock the table, adjust to the desired height, and relock the table.
4. Adjust the safety guard up or down as needed.
5. Select the transmission mode with handle. In general, speeds for tapping will require low transmission (turtle) mode.



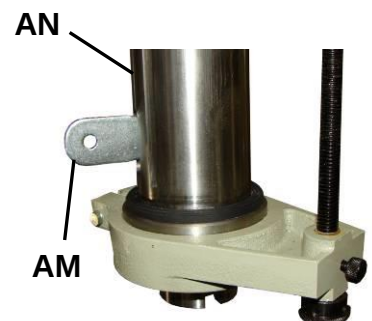
**Important: DO NOT** change transmission spindle selection until the spindle has stopped completely. Switching transmission with the motor on and spindle turn can damage gears.

6. Selector switch (AE) shown in tapping position.
7. Set the tap tool depth to zero position by lowering it to the top surface of the piece part, using the down-feed handles.
8. While holding the zero position, turn the depth scale lock knob (AL) counterclockwise (ccw) to release depth stop knob (P).
9. Rotate knob (P) to set the drill depth on the scale with indicator (R).
10. Re-tighten lock knob (AL).
11. Start machine by pressing start button (AE)
12. Turn on the coolant selector switch (AA).
13. Begin tapping using the down-feed handles (E) to lower the chuck. When the tap reaches the bottom of the preset depth, the spindle will automatically reverse direction. You can also reverse the tapping operation at anytime by pressing the green reverse button (AD).



## Removing Tooling From Spindle

1. Disconnect machine from the power source.
2. Place a piece of wood on the table for protection.
3. Position the worktable approximately 10" under the bit and lower the spindle about 6".
4. Place the drift key (AM) into the slot (AN) of the quill and tap the end of the drift key with a hammer until the bit or chuck arbor falls out.



## **DRILLING RECOMMENDATIONS**

### **Drilling Speeds**

The speed of a drill is usually measured in terms of the rate at which the outer periphery of the tool moves in relation to the work being drilled. The common term for this is Surface Feet per Minute (SFM).

The relationship of SFM is expressed in the following formulas:

- $SFM = 0.26 \times rpm \times \text{Drill Diameter (in inches)}$
- $RPM = 3.8 \times SFM \div \text{Drill diameter (in inches)}$

In general, the higher the speed the shorter the drill life. Operating at the low end of the speed range for a particular material will result in longer life.

The most efficient speed for drill operation depends upon many variables:

- Composition and hardness of material.
- Depth of hole.
- Efficiency of cutting fluid.
- Type and condition of drilling machine.
- Desired quality of hole.
- Difficulty of set-up.

### **Drilling Feed**

The feed of a drill is governed by size of tool and the material drilled.

Because feed rate partially determines rate of production and also is a factor in tool life, it should be chosen carefully for each job. In general, the most effective feeds will be found in the following ranges:

| Diameter of Drill (inches) | Feed per Revolution (inches) |
|----------------------------|------------------------------|
| Under 1/8                  | 0.001 to 0.002               |
| 1/8 to 1/4                 | 0.002 to 0.004               |
| 1/4 to 1/2                 | 0.004 to 0.007               |
| 1/2 to 5/8                 | 0.007 to 0.015               |

### **Excessive Speed/Feed Indicators**

- A drill that splits up the web is evidence of too much feed or insufficient tip clearance at the center because of improper grinding.
- The rapid wearing away of the extreme outer corners of cutting edges indicates that speed is too high.
- A drill chipping or breaking out at the cutting edges indicates that either feed is too heavy, or drill has been ground with too much tip clearance.

## Speeds for High Speed Steel Drills

| Material                                                                                                                                    | Speed (SFPM) |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Alloy Steel — 300 to 400 Brinell                                                                                                            | 20-30        |
| Stainless Steel                                                                                                                             | 30-40        |
| Automotive Steel Forgings                                                                                                                   | 40-50        |
| Tool Steel, 1.2C                                                                                                                            | 50-60        |
| Steel, .4C to .5C                                                                                                                           | 70-80        |
| Mild Machinery Steel, .2C to .3C                                                                                                            | 80-110       |
| Hard Chilled Cast Iron                                                                                                                      | 30-40        |
| Medium Hard Cast Iron                                                                                                                       | 70-100       |
| Soft Cast Iron                                                                                                                              | 100-150      |
| Malleable Iron                                                                                                                              | 80-90        |
| High Nickel Steel or Monel                                                                                                                  | 40-50        |
| High Tensile Bronze                                                                                                                         | 70-150       |
| Ordinary Brass and Bronze                                                                                                                   | 200-300      |
| Aluminum and its Alloys                                                                                                                     | 200-300      |
| Magnesium and its Alloys                                                                                                                    | 250-400      |
| Slate, Marble, and Stone                                                                                                                    | 15-25        |
| Plastics and similar materials (Bakelite)                                                                                                   | 100-150      |
| Wood                                                                                                                                        | 300-400      |
| Titanium Alloys                                                                                                                             | 10-25        |
| Titanium Alloy Sheet                                                                                                                        | 50-60        |
| <b>Note:</b> In cases where carbon steel drills are applicable, the drill should be run at speeds of 40 to 50 percent of those given above. |              |

## **LUBRICATION AND MAINTENANCE**

**WARNING:** Make sure the electrical disconnect is OFF before working on the machine. Maintenance should be performed on a regular basis by qualified personnel. Always follow proper safety precautions when working on or around any machinery.

### **Daily Maintenance**

- Check daily for any unsafe conditions and fix immediately.
- Check that all nuts and bolts are properly tightened.
- Do a general cleaning by removing dust and metal chips from the machine.
- Top off the coolant reservoir. (80% of full tank capacity)
- Clean filter screen located on the machine base as often as necessary.
- Check that the guard and emergency stop are in good working order.

### **Weekly Maintenance**

- Check the oil fill window. It is located on the side of the drill head and should be at least half full at all times.
- Thoroughly clean the machine including the coolant tank. See accessing and cleaning the cooling system.
- On a weekly basis clean the machine and the area around it.
- Lubricate threaded components and sliding devices.
- Apply rust inhibitive lubricant to all non-painted surfaces.
- Clean and grease the sliding surfaces.

### **Monthly Maintenance**

- Check that all screws on the motor, the pump, and the guard are tight and secure.
- Check that the guard is operating properly.
- There is a grease fitting (V) on the side of the drill head pivot for lubricating the gear shaft. Using a grease gun, inject grease through this fitting.

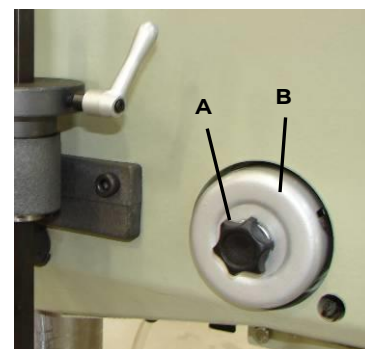


**Note:** Proper maintenance can increase the life expectancy of your machine.

### **Return Spring**

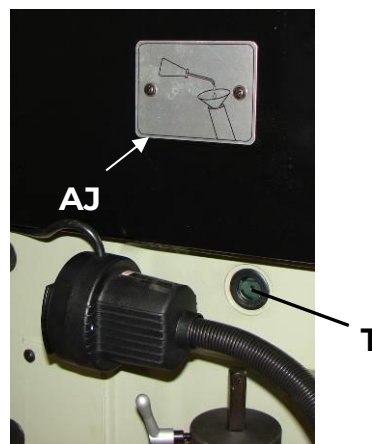
The spindle return is preset by the manufacturer and should not need adjustment. If future attention is ever required, proceed as follows:

1. Do NOT remove spring cap.
2. Loosen screw (A) just enough to rotate spring cap (B) past pin (Inside case. Not normally visible.) and engage pin into next notch.
3. Rotate spring cap clockwise to decrease spring tension. Rotate spring cap counterclockwise to increase spring tension.
4. Tighten both screws (A).



### **Replacing Gearbox Oil**

- 1st Time: After initial operation of 30 hours.
  - 2nd Time: After 1 month of operation
  - 3rd Time: Every 12 months of operation
1. To change the oil you need to remove the cover plate on the underside of the head.
  2. Remove the oil drain plug (AI) visible through the access hole. (Have a drain pan or container handy to collect the used oil). Be sure the gearbox is completely empty before putting the oil drain plug back in.
  3. Remove the oil add cover plate (AJ) covering the oil fill tube and fill the gearbox with fresh SAE 80W-90 gear oil until it reaches the center of the oil sight window (T).



### **Oil Disposal**

Used oil products must be disposed of in a proper manner following your local regulations.

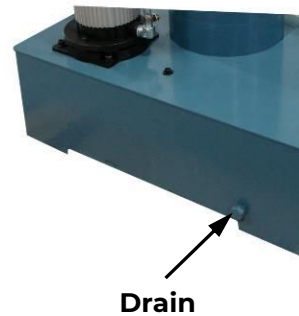
### **Greasing the Machine**

- Grease the gear rack on the column to keep the table moving smoothly.
- Lubricate the spline of the spindle and the teeth of the quill with a #2 grease.



### **Accessing and Cleaning the Coolant System**

1. Clean the drain screen.
2. Drain and wash out the dirt and debris from the reservoir
3. Replace coolant drain plug.
4. Thoroughly clean the pump and pump inlet
5. Re-fill tank with coolant solution.



### **Accessing and Cleaning the Coolant System**

- Clean the drain screens on the machine base and the drains on the ends of the table.
- Drain and wash out the dirt and debris from the reservoir
- Thoroughly clean the pump and pump inlet
- Re-fill tank with coolant solution.

### **Oils for Lubricating Coolant**

Any 10:1 (water to coolant) solution will work, however we recommend PROMAC B-Cool 20:1 (water to coolant) biodegradable metal cutting fluid. It has excellent cooling and heat transfer characteristics, is non-flammable, and extends tool and machine life. Each gallon of concentrate makes 21 gallons of coolant.

### **Storing Machine for Extended Period of Time**

If the drill press is to be inactive for a long period of time, prepare the machine as follows:

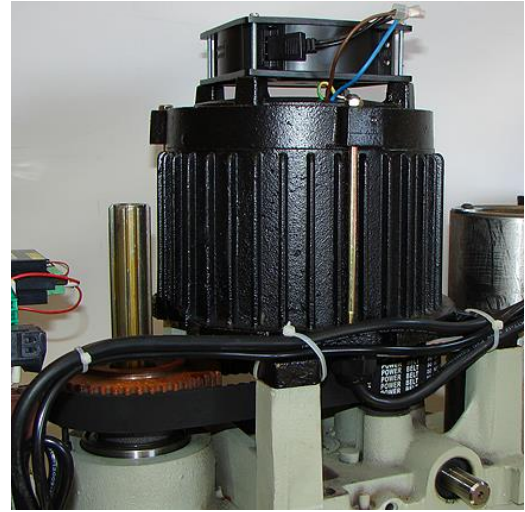
- Disconnect the electrical supply from the power panel.
- Empty and clean the coolant reservoir.
- Clean and grease the machine.
- Cover the machine.

## **Motor / Drive Belt Replacement**

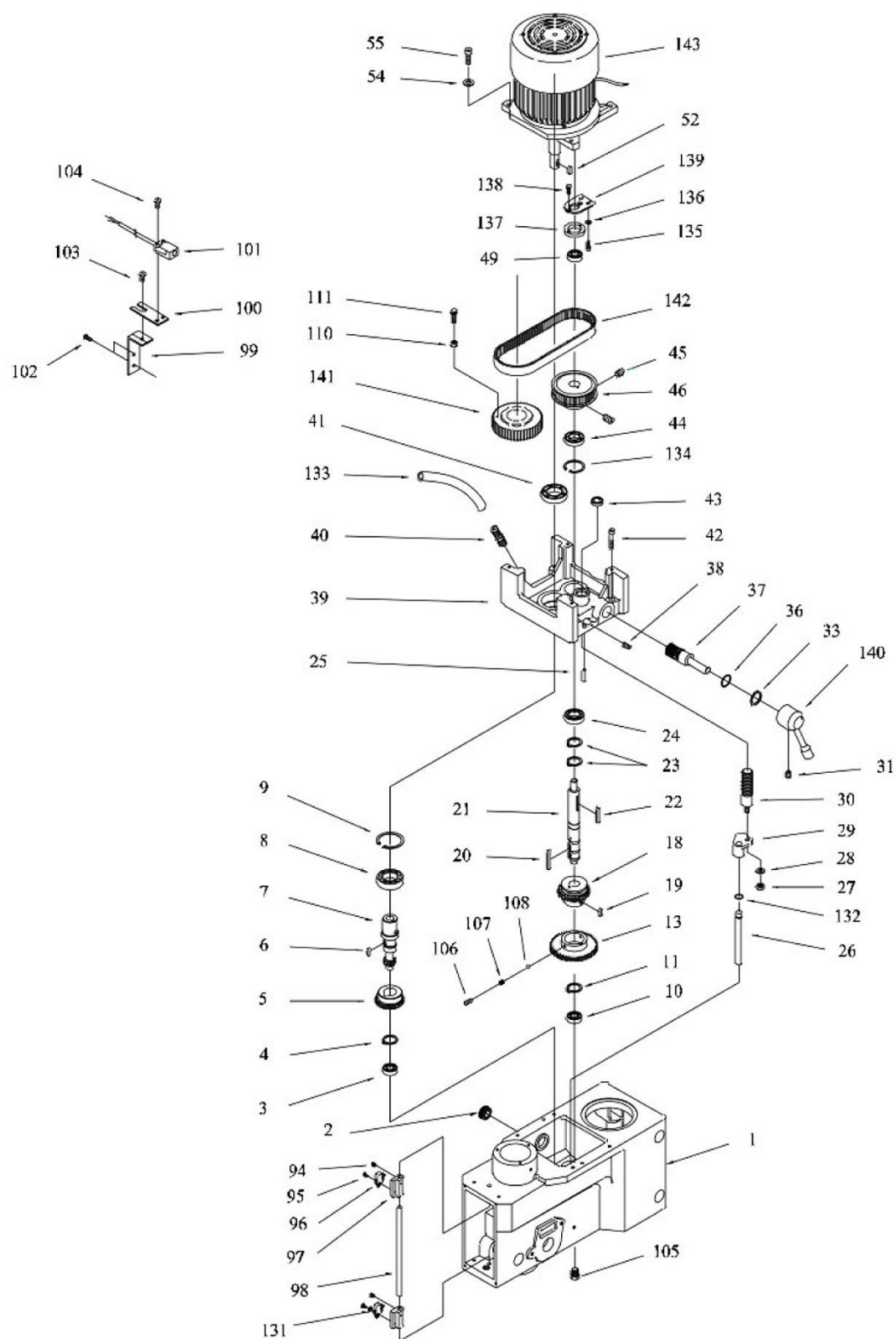
1. Disconnect machine from power source. Disconnect electrical power to drill press to avoid possibility of inadvertent operation and exposure to potentially lethal voltage levels.

**Note:** *Prefer to the parts diagram as needed to aid in disassembly and assembly.*

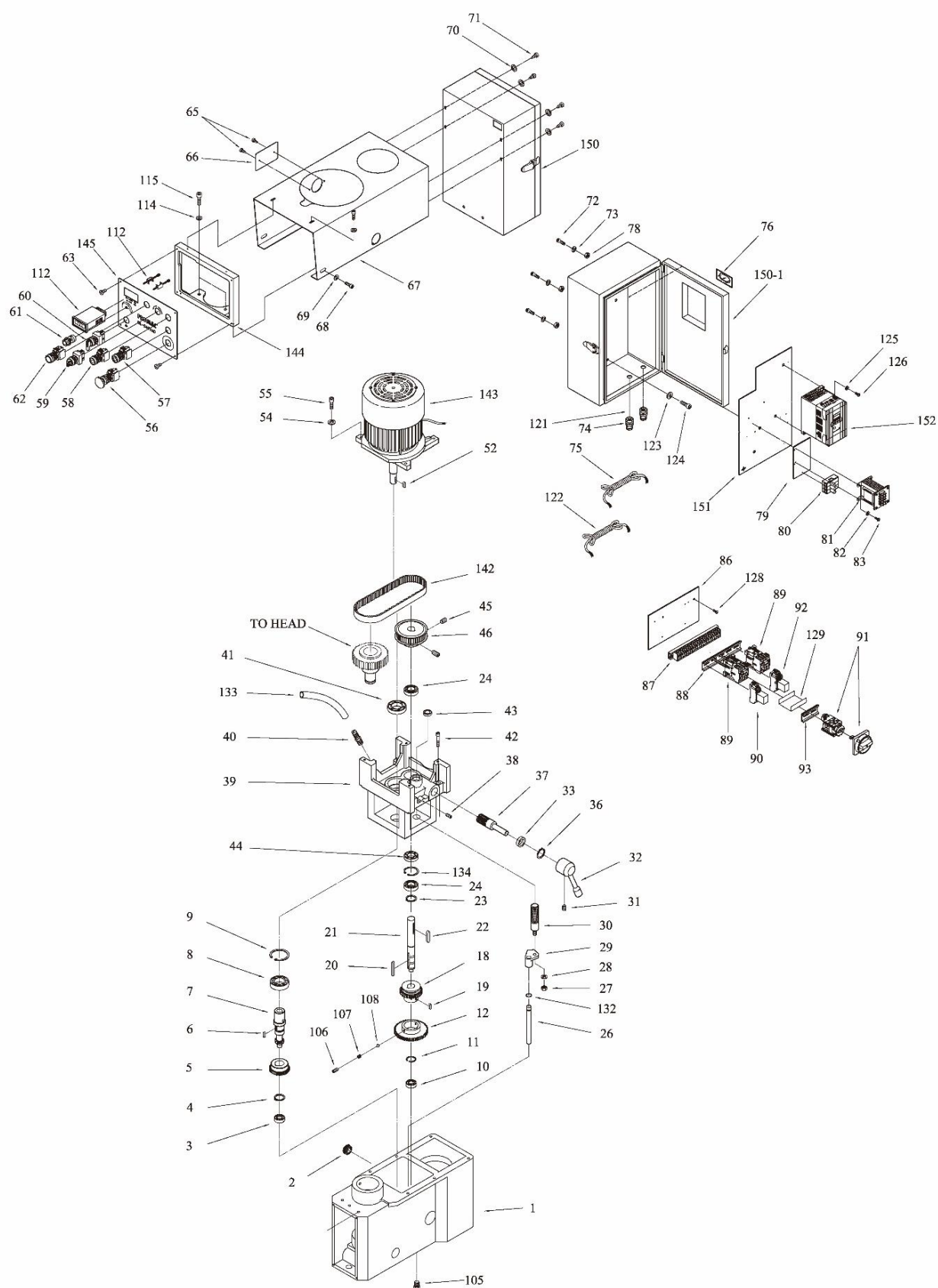
2. Loosen set screw and remove high/low shift lever.
3. Remove screws and take off pulley cover.
4. Open the motor junction box cover and document /photograph the wiring connections.
5. Disconnect electrical wiring from motor junction box and remove motor.
6. Remove used belt.
7. Install replacement belt.
8. Install motor and connect electrical wiring (refer to removal notes and photos for wiring details).
9. Install pulley cover and secure with screws.
10. Set the drill press circuit breaker ON.
11. Operate drill press to verify correct operation.



## EXPLOSION DRAWING / ERSATZTEILZEICHNUNG / VUE ÉCLATÉE

**BX-840VT-M**

## EXPLOSION DRAWING / ERSATZTEILZEICHNUNG / VUE ÉCLATÉE

**BX-840VT-M**

## PART LIST / ERSATZTEILLISTE / LISTE DES PIÈCES DÉTACHÉES

**BX-840VT-M**

| Item | Part No.     | Description                                                                                                | Qty. |
|------|--------------|------------------------------------------------------------------------------------------------------------|------|
| 1    | PM-840VT-A1  | Head Body / Kopf Körper / Tête Corps                                                                       | 1    |
| 2    | PM-840VT-A2  | Oil Window / Ölfenster / Fenêtre à huileS-30                                                               | 1    |
| 3    | PM-840VT-A3  | Ball Bearing / Kugellager / Roulement à billes 6202z                                                       | 1    |
| 4    | PM-840VT-A4  | C-Clip / C-Clip / Clip en C S-31                                                                           | 1    |
| 5    | PM-840VT-A5  | Gear / Getriebe / Engrenages M=2, T=32                                                                     | 1    |
| 6    | PM-840VT-A6  | Key / Schlüssel / Clé 6x20                                                                                 | 1    |
| 7    | PM-840VT-A7  | Drive Shaft / Antriebswelle / Arbre d'entraînement M=2, T=13                                               | 1    |
| 8    | PM-840VT-A8  | Ball Bearing / Kugellager / Roulement à billes 6007z                                                       | 1    |
| 9    | PM-840VT-A9  | C-Clip / C-Clip / Clip en C R-62                                                                           | 1    |
| 10   | PM-840VT-A10 | Ball Bearing / Kugellager / Roulement à billes 6002z                                                       | 1    |
| 11   | PM-840VT-A11 | C-Clip / C-Clip / Clip en C S-25                                                                           | 1    |
| 13   | PM-840VT-A13 | Gear / Getriebe / Engrenages M=2, T=56                                                                     | 1    |
| 18   | PM-840VT-A18 | Gear / Getriebe / Engrenages M=2, T=36                                                                     | 1    |
| 19   | PM-840VT-A19 | Key / Schlüssel / Clé 6x20                                                                                 | 1    |
| 20   | PM-840VT-A20 | Key / Schlüssel / Clé 7x55                                                                                 | 1    |
| 21   | PM-840VT-A21 | Shaft / Welle / Arbre                                                                                      | 1    |
| 22   | PM-840VT-A22 | Key / Schlüssel / Clé 7x40                                                                                 | 1    |
| 23   | PM-840VT-A23 | C-Clip / C-Clip / Clip en C S-25                                                                           | 2    |
| 24   | PM-840VT-A24 | Ball Bearing / Kugellager / Roulement à billes 6005z                                                       | 1    |
| 25   | PM-840VT-A25 | Taper Pin / Kegelstift / Goupille conique 5x38                                                             | 2    |
| 26   | PM-840VT-A26 | Rod / Stab / Tige                                                                                          | 1    |
| 27   | PM-840VT-A27 | Hex Nut / Sechskantmutter / Écrou hexagonal M10                                                            | 1    |
| 28   | PM-840VT-A28 | Lock Washer / Sicherungsscheibe / Rondelle de blocage M10                                                  | 1    |
| 29   | PM-840VT-A29 | Speed Change Block / Geschwindigkeitswechsel-Block / Bloc de changement de vitesse                         | 1    |
| 30   | PM-840VT-A30 | Screw Bar / Schraube Bar / Barre à vis                                                                     | 1    |
| 31   | PM-840VT-A31 | Set Screw / Stellschraube / Vis de réglage 3/8"x3/8"                                                       | 1    |
| 33   | PM-840VT-A33 | Oil Ring / Öhring / Bague d'huile 30x17x7                                                                  | 1    |
| 36   | PM-840VT-A36 | C-Clip / C-Clip / Clip en C R-30                                                                           | 1    |
| 37   | PM-840VT-A37 | Gear Shift / Gangschaltung / Changement de vitesse T-18                                                    | 1    |
| 38   | PM-840VT-A38 | Set Screw / Stellschraube / Vis de réglage M6x8                                                            | 1    |
| 39   | PM-840VT-A39 | Gear Box / Getriebe / Boîte de vitesses                                                                    | 1    |
| 40   | PM-840VT-A40 | Oil Filter / Ölfilter / Filtre à huile 3/8"x3/8"                                                           | 1    |
| 41   | PM-840VT-A41 | Oil Seal / Öldichtung / Joint d'huile 62x35x10                                                             | 1    |
| 42   | PM-840VT-A42 | Hex Socket Cap screw / Zylinderschraube mit Innensechskant / Vis à tête cylindrique à six pans creux M8x35 | 4    |
| 43   | PM-840VT-A43 | Oil Seal / Öldichtung / Joint d'huile 25x5                                                                 | 1    |
| 44   | PM-840VT-A44 | Oil Seal / Öldichtung / Joint d'huile 47x25x8                                                              | 1    |
| 45   | PM-840VT-A45 | Set Screw / Stellschraube / Vis de réglage M8x8                                                            | 2    |
| 46   | PM-840VT-A46 | Drive Pulley / Antriebsriemenscheibe / Poulie d'entraînement                                               | 1    |
| 49   | PM-840VT-A49 | Ball Bearing / Kugellager / Roulement à billes 6202z                                                       | 1    |
| 52   | PM-840VT-A52 | Key / Schlüssel / Clé 6x20                                                                                 | 1    |
| 54   | PM-840VT-A54 | Washer / Unterlegscheibe / Rondelle M8                                                                     | 4    |
| 55   | PM-840VT-A55 | Hex Socket Cap Screw / Zylinderschraube mit Innensechskant / Vis à tête cylindrique à six pans creux M8x25 | 4    |
| 56   | PM-840VT-A56 | SB1, Emergency Stop Switch / Not-Halt / Arrêt d'urgence                                                    | 1    |
| 57   | PM-840VT-A57 | SB2, Stop Switch / Stoppschalter / Interrupteur d'arrêt                                                    | 1    |
| 58   | PM-840VT-A58 | SB3, Start Switch / Startschalter / Interrupteur de démarrage                                              | 1    |
| 59   | PM-840VT-A59 | SB4, Selection Switch / Auswahlshalter / Interrupteur de sélection D/T                                     | 1    |
| 60   | PM-840VT-A60 | SB6, Pump Switch / Pumpenschalter / interrupteur de pomp                                                   | 1    |
| 61   | PM-840VT-A61 | VR, Speed Control Knob / Geschwindigkeitsregler / Bouton de contrôle de vitesse                            | 1    |

## PART LIST / ERSATZTEILLISTE / LISTE DES PIÈCES DÉTACHÉES

**BX-840VT-M**

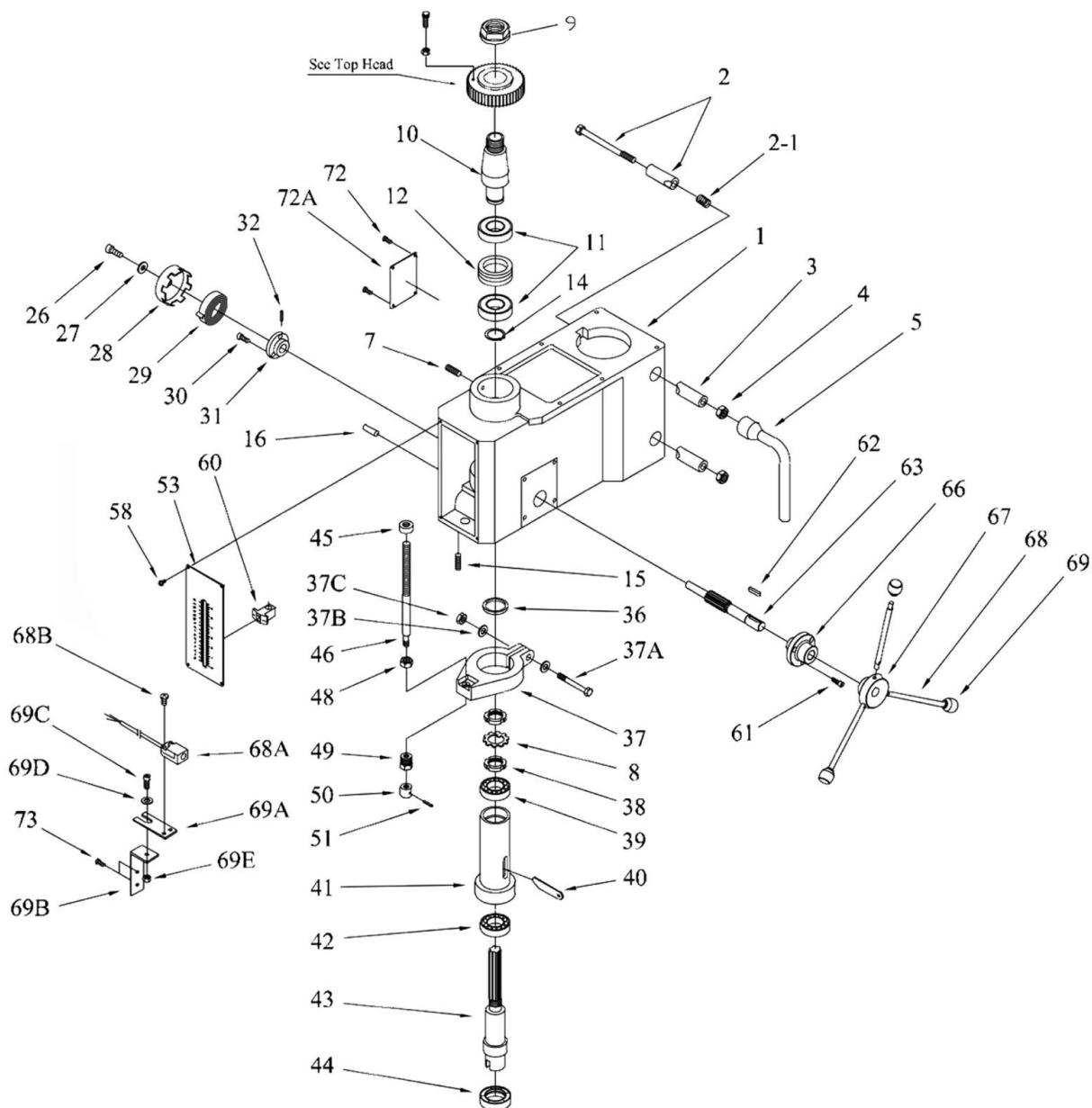
| Item | Part No.       | Description                                                                                                                | Qty. |
|------|----------------|----------------------------------------------------------------------------------------------------------------------------|------|
| 62   | PM-840VT-A62   | SB5, Reversal Switch / Rückwärtsschalter / Interrupteur inverseur                                                          | 1    |
| 63   | PM-840VT-A63   | Screw / Schraub / Vis                                                                                                      | 4    |
| 65   | PM-840VT-A65   | Cross Head Screw / Kreuzschlitzschraube / Vis à tête cruciforme 3/16"x3/8"                                                 | 2    |
| 66   | PM-840VT-A66   | Oil Filter Cover / Ölfilterdeckel / Couvercle du filtre à huile                                                            | 1    |
| 67-3 | PM-840VT-A67-3 | Cross Head Screw / Kreuzschlitzschraube / Vis à tête cruciforme 3/16"x3/16"                                                | 8    |
| 67-7 | PM-840VT-A67-7 | Washer / Unterlegscheibe / Rondelle 3/16"                                                                                  | 8    |
| 71   | PM-840VT-A71   | Cross Head Screw / Kreuzschlitzschraube / Vis à tête cruciforme M6x16                                                      | 4    |
| 72   | PM-840VT-A72   | Hex Socket Cap Screw / Zylinderschraube mit Innensechskant / Vis à tête cylindrique à six pans creux 5/16"x1"              | 3    |
| 73   | PM-840VT-A73   | Washer / Unterlegscheibe / Rondelle 5/16"                                                                                  | 3    |
| 74   | PM-840VT-A74   | Relief for Power Cable / Entlastung für Stromkabel / Relief pour le câble d'alimentation                                   | 1    |
| 75   | PM-840VT-A75   | Power Cable / Stromkabel / Câble d'alimentation                                                                            | 1    |
| 76   | PM-840VT-A76   | Plastic Plate / Kunststoffplatte / Plaque en plastique                                                                     | 1    |
| 78   | PM-840VT-A78   | Nut / Mutter / Écrou 5/16"                                                                                                 | 3    |
| 79   | PM-840VT-A79   | Insulation Board / Dämmplatte / Panneau d'isolation                                                                        | 1    |
| 80   | PM-840VT-A80   | Fuse / Sicherungen / Fusibles (0.5A)                                                                                       | 2    |
| 80   | PM-840VT-A80   | Fuse / Sicherungen / Fusibles (3A)                                                                                         | 1    |
| 81   | PM-840VT-A81   | TR, Transformer / Transformator / Transformateur                                                                           | 1    |
| 82   | PM-840VT-A82   | Washer / Unterlegscheibe / Rondelle M4                                                                                     | 4    |
| 83   | PM-840VT-A83   | Screw / Schraub / Vis M4x20                                                                                                | 4    |
| 86   | PM-840VT-A86   | Connecting Board / Anschlussstafel / Tableau de connexion                                                                  | 1    |
| 87   | PM-840VT-A87   | Terminal Plate / Anschlussplatte / Plaque à bornes                                                                         | 1    |
| 88   | PM-840VT-A88   | Aluminum Rail Plate / Aluminium-Schienenplatte / Plaque de rail en aluminium                                               | 1    |
| 89   | PM-840VT-A89   | KM2, Contactor / Schütz / Contacteur                                                                                       | 1    |
| 90   | PM-840VT-A90   | KR, Relay / Relais / Relais                                                                                                | 1    |
| 91   | PM-840VT-A91   | Q1, Main Disconnect Switch Assembly / Haupttrennschalter-Baugruppe / Assemblage de l'interrupteur principal de déconnexion | 1    |
| 93   | PM-840VT-A93   | Aluminum Rail Plate-Small / Aluminium-Schienenplatte-klein / Plaque de rail en aluminium - Petite                          | 1    |
| 94   | PM-840VT-A94   | Set Screw / Stellschraube / Vis de réglage 1/4"x1/4"                                                                       | 4    |
| 95   | PM-840VT-A95   | Cross Head Screw / Kreuzschlitzschraube / Vis à tête cruciforme M3x16                                                      | 4    |
| 96   | PM-840VT-A96   | QS2, QS3, Micro Switch / Mikroschalter / Micro-interrupteur                                                                | 2    |
| 97   | PM-840VT-A97   | Micro Switch Bracket / Mikroschalter-Halterung / Support pour micro-interrupteur                                           | 2    |
| 98   | PM-840VT-A98   | Micro Switch Support Rod / Mikroschalter-Stützstange / Tige de support du micro-interrupteur                               | 1    |
| 99   | PM-840VT-A99   | Sensor Bracket / Sensor-Halterung / Support de capteur                                                                     | 1    |
| 100  | PM-840VT-A100  | Sensor Support / Sensor-Unterstützung / Support du capteur                                                                 | 1    |
| 101  | PM-840VT-A101  | Sensor, Spindle Speed Pickup / Sensor, Spindeldrehzahlabtastung / Capteur, capteur de vitesse de broche                    | 1    |
| 102  | PM-840VT-A102  | Hex Socket Cap Screw / Zylinderschraube mit Innensechskant / Vis à tête cylindrique à six pans creux M5x10                 | 2    |
| 103  | PM-840VT-A103  | Screw / Schraub / Vis M4x6                                                                                                 | 1    |
| 104  | PM-840VT-A104  | Screw / Schraub / Vis M4x20                                                                                                | 2    |
| 105  | PM-840VT-A105  | Hex Head Plugs / Sechskantdübel / Bouchons à tête hexagonale 3/8"                                                          | 1    |
| 106  | PM-840VT-A106  | Set Screw / Stellschraube / Vis de réglage M10x10                                                                          | 2    |
| 107  | PM-840VT-A107  | Spring / Feder / Ressort                                                                                                   | 2    |
| 108  | PM-840VT-A108  | Steel Ball / Stahlkugel / Boule d'acier M8                                                                                 | 2    |
| 110  | PM-840VT-A110  | Hex Nut / Sechskantmutter / Écrou hexagonal 3/16                                                                           | 1    |

## PART LIST / ERSATZTEILLISTE / LISTE DES PIÈCES DÉTACHÉES

**BX-840VT-M**

| Item  | Part No.        | Description                                                                                                              | Qty. |
|-------|-----------------|--------------------------------------------------------------------------------------------------------------------------|------|
| 111   | PM-840VT-A111   | Hex Socket Cap Screw / Zylinderschraube mit Innensechskant / Vis à six pans creux 3/16"x3/4"                             | 1    |
| 112   | PM-840VT-A112   | Digital Display, Spindle Speed / Digitalanzeige, Spindeldrehzahl / Affichage numérique, vitesse de rotation de la broche | 1    |
| 113   | PM-840VT-A113   | Holder Screw / Halterung Schraube / Vis de fixation                                                                      | 2    |
| 114   | PM-840VT-A114   | Washer / Unterlegscheibe / Rondelle M8                                                                                   | 2    |
| 115   | PM-840VT-A115   | Hex Socket Cap Screw / Zylinderschraube mit Innensechskant / Vis à tête cylindrique à six pans creux M8x20               | 2    |
| 116   | PM-840VT-A116   | Screw / Schraub / Vis M5x8                                                                                               | 2    |
| 118   | PM-840VT-A118   | Screw / Schraub / Vis M5x8                                                                                               | 4    |
| 119   | PM-840VT-A119   | Screw / Schraub / Vis M5x8                                                                                               | 4    |
| 121   | PM-840VT-A121   | Cable Relief for Pump Cable / Kabelentlastung für Pumpenkabel / Soulagement du câble de la pompe                         | 1    |
| 122   | PM-840VT-A122   | Pump Cable / Pumpenkabel / Câble de pompe                                                                                | 1    |
| 123   | PM-840VT-A123   | Washer / Unterlegscheibe / Rondelle M8                                                                                   | 4    |
| 124   | PM-840VT-A124   | Hex Socket Cap Screw / Zylinderschraube mit Innensechskant / Vis à tête cylindrique à six pans creux M8x12               | 4    |
| 125   | PM-840VT-A125   | Washer / Unterlegscheibe / Rondelle M4                                                                                   | 2    |
| 126   | PM-840VT-A126   | Screw / Schraub / Vis M4x20                                                                                              | 2    |
| 127   | PM-840VT-A127   | Terminal Plate / Anschlussplatte / Plaque à bornes                                                                       | 1    |
| 128   | PM-840VT-A128   | Screw / Schraub / Vis M4x8                                                                                               | 5    |
| 129   | PM-840VT-A129   | Safety Switch Bracket / Halterung für Sicherheitsschalter / Support de l'interrupteur de sécurité                        | 1    |
| 130   | PM-840VT-A130   | KM1, Contactor / Schütz / Contacteur                                                                                     | 1    |
| 131   | PM-840VT-A131   | Washer / Unterlegscheibe / Rondelle 1/8"                                                                                 | 4    |
| 132   | PM-840VT-A132   | Oil Ring / Öldichtung / Joint d'huile P-11                                                                               | 1    |
| 133   | PM-840VT-A133   | Tube / Rohr / Tube                                                                                                       | 1    |
| 134   | PM-840VT-A134   | C-Clip / C-Clip / Clip en C R-47                                                                                         | 1    |
| 135   | PM-840VT-A135   | Hex Socket Cap Screw / Zylinderschraube mit Innensechskant / Vis à tête cylindrique à six pans creux M8x12               | 2    |
| 136   | PM-840VT-A136   | Washer / Unterlegscheibe / Rondelle M5                                                                                   | 2    |
| 137   | PM-840VT-A137   | Bearing Support / Lagerhalterung / Support de palier                                                                     | 1    |
| 138   | PM-840VT-A138   | Flat Head Screw / Flachkopfschraube / Vis à tête plate 5x12                                                              | 2    |
| 139   | PM-840VT-A139   | Ball Bracket / Kugelhalterung / Support de balle                                                                         | 1    |
| 140   | PM-840VT-A140   | Speed Lever / Geschwindigkeitshebel / Levier de vitesse                                                                  | 1    |
| 141   | PM-840VT-A141   | Drive Spindle Pulley / Antriebsspindel Riemenscheibe / Poulie de la broche d'entraînement M=8, T=64                      | 1    |
| 142   | PM-840VT-A142   | Belt / Gürtel / Ceinture 680x8m                                                                                          | 1    |
| 143   | PM-840VT-A143   | M1, Motor / Motor / Moteur                                                                                               | 1    |
| 144   | PM-840VT-A144   | Plate Bracket / Platte Halterung / Support de plaque                                                                     | 1    |
| 145   | PM-840VT-A145   | Control Panel LD / Bedienfeld LD / Panneau de contrôle LD                                                                | 1    |
| 146   | PM-840VT-A146   | Pulley Cover / Abdeckung der Riemenscheibe / Couvercle de poulie                                                         | 1    |
| 147   | PM-840VT-A147   | Top Cover / Obere Abdeckung / Couverture supérieure                                                                      | 1    |
| 148   | PM-840VT-A148   | Fixed Plate / Feste Platte / Plaque fixe                                                                                 | 2    |
| 149   | PM-840VT-A149   | Dust Plate / Staubteller / Plaque de poussière                                                                           | 2    |
| 150   | PM-840VT-A150   | Electric Control Box / Elektrischer Schaltkasten / Boîtier de com mande électrique                                       | 1    |
| 150-1 | PM-840VT-A150-1 | Door / Tür / Porte                                                                                                       | 1    |
| 151   | PM-840VT-A151   | Electric Base Plate / Elektrische Grundplatte / Plaque de base électrique                                                | 1    |
| 152   | PM-840VT-A152M  | Inverter / Wechselrichter / Onduleur MS-300                                                                              | 1    |
|       | PM-840VT-A152N  | InverterMS-300+Door / Wechselrichter MS-300+Tür / Onduleur MS-300+Porte                                                  | 1    |

## EXPLOSION DRAWING / ERSATZTEILZEICHNUNG / VUE ÉCLATÉE

**BX-840VT-M**

## PART LIST / ERSATZTEILLISTE / LISTE DES PIÈCES DÉTACHÉES

## BX-840VT-M

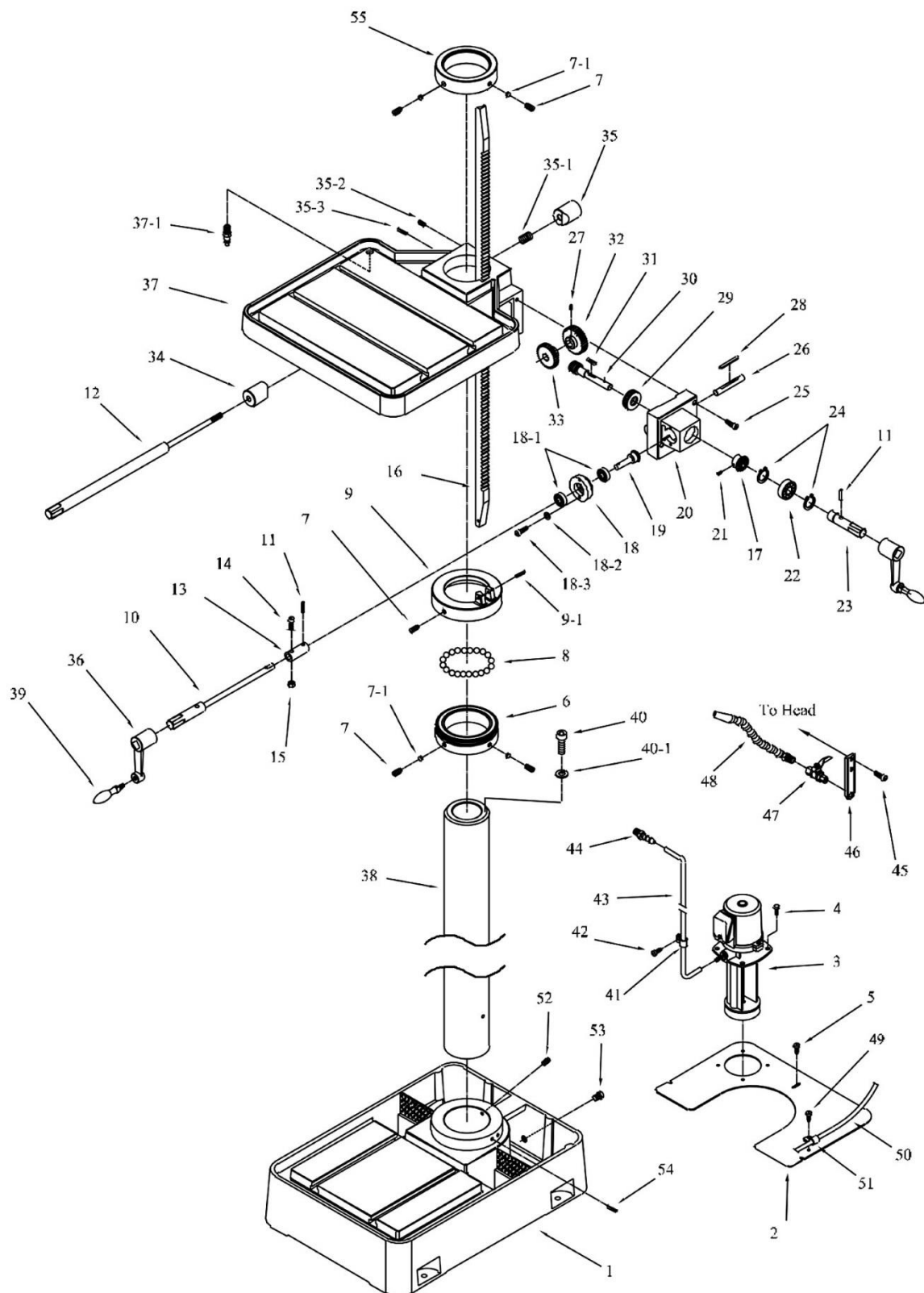
| Item | Part No.      | Description                                                                                     | Qty. |
|------|---------------|-------------------------------------------------------------------------------------------------|------|
| 1    | PM-840VT-B1   | Head Body / Kopf Körper / Tête Corps                                                            | 1    |
| 2    | PM-840VT-B2   | Head Body Hex Bolt / Kopf Körper Sechskantschraube / Tête Corps Boulon à tête hexagonale        | 2    |
| 2-1  | PM-840VT-B2-1 | Spring / Feder / Ressort                                                                        | 2    |
| 3    | PM-840VT-B3   | Bushing / Buchse / Douille                                                                      | 2    |
| 4    | PM-840VT-B4   | Nut / Mutter / Écrou                                                                            | 2    |
| 5    | PM-840VT-B5   | Handle / Handgriff / Poignée                                                                    | 2    |
| 7    | PM-840VT-B7   | Set Screw / Stellschraube / Vis de réglage 5/16"X3/4"                                           | 1    |
| 8    | PM-840VT-B8   | Star Washer / Stern-Waschmaschine / Rondelle étoilée                                            | 1    |
| 9    | PM-840VT-B9   | Spindle Nut / Spindelmutter / Écrou de broche                                                   | 1    |
| 10   | PM-840VT-B10  | Spindle Taper Sleeve / Spindel-Kegelhülse / Douille conique de broche                           | 1    |
| 11   | PM-840VT-B11  | Ball Bearing / Kugellager / Roulement à billes 6009zz                                           | 2    |
| 12   | PM-840VT-B12  | Bearing Spacer / Lager-Distanzstück / Entretoise de palier                                      | 1    |
| 14   | PM-840VT-B14  | C-Clip / C-Clip / Clip en C S-45                                                                | 1    |
| 15   | PM-840VT-B15  | Screw Bushing / Schraubbuchse / Douille à vis                                                   | 1    |
| 16   | PM-840VT-B16  | Quill Support Pin / Pinole Stützzstift / Goupille de support de l'embase                        | 1    |
| 26   | PM-840VT-B26  | Set Knob / Knopf einstellen / Bouton de réglage                                                 | 1    |
| 27   | PM-840VT-B27  | Washer / Unterlegscheibe / Rondelle 25x2x1/4"                                                   | 1    |
| 28   | PM-840VT-B28  | Spring Cover / Frühjahrsabdeckung / Couvercle de printemps                                      | 1    |
| 29   | PM-840VT-B29  | Spring / Feder / Ressort                                                                        | 1    |
| 30   | PM-840VT-B30  | Screw / Schraube / Vis 3/16"X3/8"                                                               | 3    |
| 31   | PM-840VT-B31  | Spring Bracket / Federbügel / Support de ressort                                                | 1    |
| 32   | PM-840VT-B32  | Pin / Stift / Épingle 3X20                                                                      | 1    |
| 36   | PM-840VT-B36  | Rubber Washer / Gummi Unterlegscheibe / Rondelle en caoutchouc                                  | 1    |
| 37   | PM-840VT-B37  | Feed Base / Basis füttern / Base d'alimentation                                                 | 1    |
| 37A  | PM-840VT-B37A | Hex. Head Screw / Sechskant. Kopfschraube / Vis à tête hexagonale Vis à tête hexagonale 1/4"X2" | 1    |
| 37B  | PM-840VT-B37B | Spring Washer / Federscheibe / Rondelle élastique 1/4"                                          | 2    |
| 37C  | PM-840VT-B37C | Nut / Mutter / Écrou 1/4"                                                                       | 1    |
| 38   | PM-840VT-B38  | Lock Nut / Kontermutter / Contre-écrou                                                          | 2    |
| 39   | PM-840VT-B39  | Taper Roller Bearing / Kegelrollenlager / Roulement à rouleaux coniques 30206                   | 1    |
| 40   | PM-840VT-B40  | Drift Key / Drift Schlüssel / Clé de dérive                                                     | 1    |
| 41   | PM-840VT-B41  | Quill / Federkiel / Plume                                                                       | 1    |
| 42   | PM-840VT-B42  | Taper Roller Bearing / Kegelrollenlager / Roulement à rouleaux coniques 30207                   | 1    |
| 43   | PM-840VT-B43  | Spindle Shaft / Spindelwelle / Arbre de broche MT4                                              | 1    |
| 44   | PM-840VT-B44  | Bearing Cap / Lagerdeckel / Capuchon de palier 72.45.10                                         | 1    |
| 45   | PM-840VT-B45  | Hex Nut / Sechskantmutter / Écrou hexagonal                                                     | 1    |
| 46   | PM-840VT-B46  | Scale Rod / Schuppenstab / Tige d'écaille                                                       | 1    |
| 48   | PM-840VT-B48  | Lock Nut / Kontermutter / Contre-écrou                                                          | 1    |
| 49   | PM-840VT-B49  | Support Base / Stützpunkt / Base de soutien                                                     | 1    |
| 50   | PM-840VT-B50  | Set Knob / Knopf einstellen / Bouton de réglage                                                 | 1    |
| 51   | PM-840VT-B51  | Pin / Stift / Épingle 3x15                                                                      | 1    |
| 53   | PM-840VT-B53  | Face Plate / Planscheibe / Plaque frontale                                                      | 1    |
| 58   | PM-840VT-B58  | Screw / Schraub / Vis 3/16"X5/16"                                                               | 4    |
| 60   | PM-840VT-B60  | Depth Scale Bracket / Halterung für Tiefenskala / Support pour échelle de profondeur            | 1    |
| 61   | PM-840VT-B61  | Set Screw / Stellschraube / Vis de réglage 3/16"X1/2"                                           | 1    |
| 62   | PM-840VT-B62  | Key / Schlüssel / Clé 7x20                                                                      | 1    |
| 63   | PM-840VT-B63  | Pinion Shaft / Ritzelwelle / Arbre à pignon                                                     | 1    |

## PART LIST / ERSATZTEILLISTE / LISTE DES PIÈCES DÉTACHÉES

**BX-840VT-M**

| Item | Part No.      | Description                                                                 | Qty. |
|------|---------------|-----------------------------------------------------------------------------|------|
| 66   | PM-840VT-B66  | Flange / Flansch / Bride                                                    | 1    |
| 67   | PM-840VT-B67  | Body Handle / Körper Griff / Poignée du corps                               | 1    |
| 68   | PM-840VT-B68  | Handle Rod / Handgriff Stange / Tige de la poignée                          | 3    |
| 68A  | PM-840VT-B68A | Sensor / Sensor / Capteur                                                   | 1    |
| 68B  | PM-840VT-B68B | Screw / Schraub / Vis M4x20                                                 | 2    |
| 69   | PM-840VT-B69  | Knob / Knopf / Bouton                                                       | 3    |
| 69A  | PM-840VT-B69A | Sensor Support / Sensor-Unterstützung / Support du capteur                  | 1    |
| 69B  | PM-840VT-B69B | Sensor Bracket / Sensor-Halterung / Support de capteur                      | 1    |
| 69C  | PM-840VT-B69C | Screw / Schraub / Vis M4x6                                                  | 1    |
| 69D  | PM-840VT-B69D | Washer / Unterlegscheibe / Rondelle M4                                      | 1    |
| 69E  | PM-840VT-B69E | Hex Nut / Sechskantmutter / Écrou hexagonal M4                              | 1    |
| 72   | PM-840VT-B72  | Cover / Abdeckung / Couverture                                              | 1    |
| 72A  | PM-840VT-B72A | Cover Cap Screw / Abdeckkappenschraube / Vis d'obturation                   | 2    |
| 73   | PM-840VT-B73  | Hex Socket Cap Screw / Innensechskantschraube / Vis à tête hexagonale M5x10 | 2    |

## EXPLOSION DRAWING / ERSATZTEILZEICHNUNG / VUE ÉCLATÉE

**BX-840VT-M**

## PART LIST / ERSATZTEILLISTE / LISTE DES PIÈCES DÉTACHÉES

**BX-840VT-M**

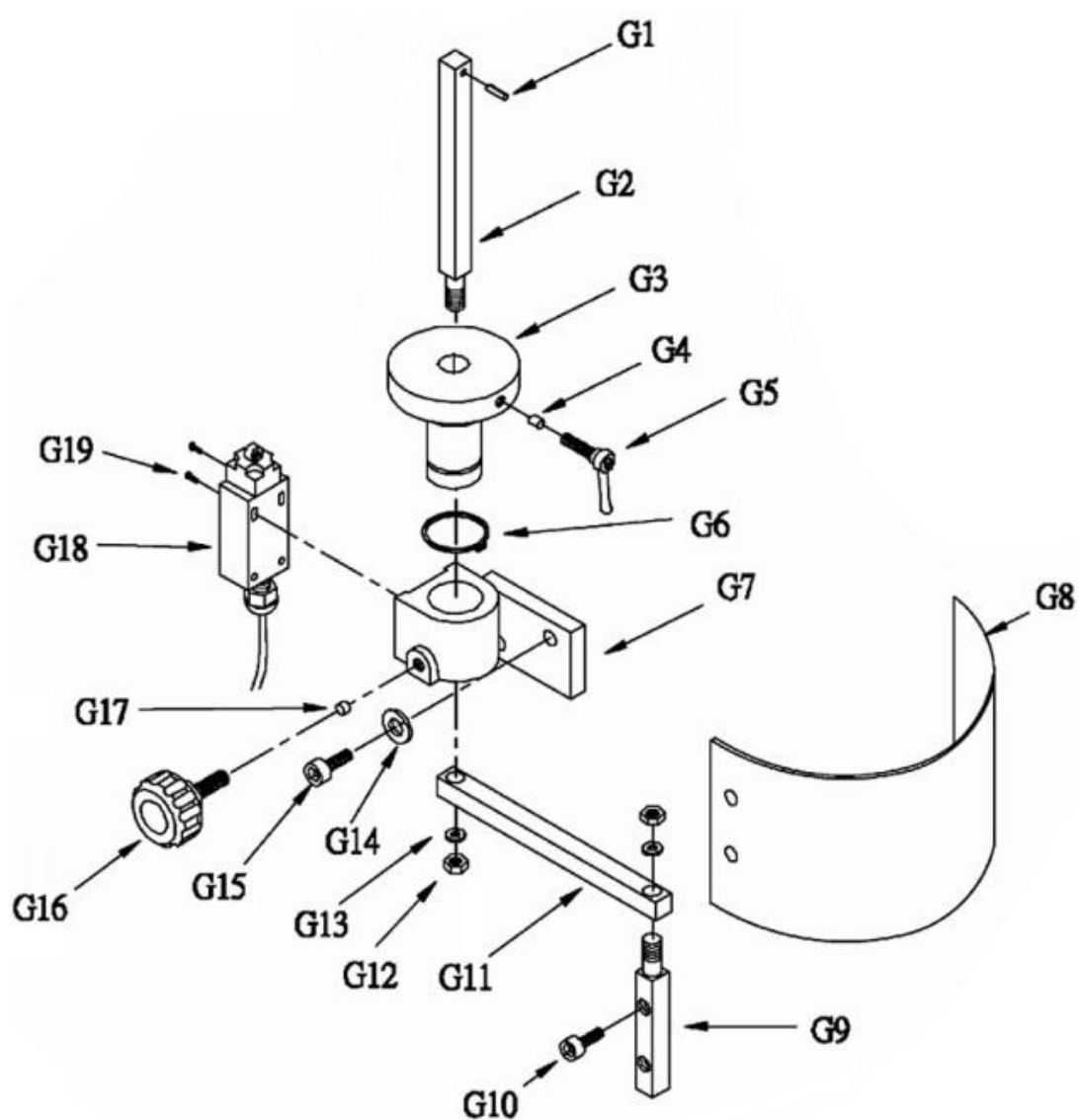
| Item | Part No.       | Description                                                                           | Qty. |
|------|----------------|---------------------------------------------------------------------------------------|------|
| 1    | PM-840VT-C1    | Coolant Base / Kühlmittel Basis / Base du réfrigérant                                 | 1    |
| 2    | PM-840VT-C2    | Cover / Abdeckung / Couverture                                                        | 1    |
| 3    | PM-840VT-C3    | M2, Coolant Pump / Kühlmittelpumpe / Pompe de refroidissement 1/8HP, 230V             | 1    |
| 4    | PM-840VT-C4    | Screw W/Washer / Schraube m/Unterlegscheibe / Vis avec rondelle 1/4"                  | 2    |
| 5    | PM-840VT-C5    | Cross Screw / Kreuzschraube / Vis en croix 1/4"x1/2"                                  | 1    |
| 6    | PM-840VT-C6    | Support Bearing Collar / Stützlager-Manschette / Collier de support de palier         | 1    |
| 7    | PM-840VT-C7    | Set Screw / Stellschraube / Vis de réglage 3/8"x5/16"                                 | 4    |
| 7-1  | PM-840VT-C7-1  | Brass Block / Messing-Block / Bloc de laiton 3/8"                                     | 4    |
| 8    | PM-840VT-C8    | Steel Ball / Stahlkugel / Boule d'acier M10                                           | 40   |
| 9    | PM-840VT-C9    | Column Bearing Collar / Säulenlagerkragen / Collier de support de colonne             | 1    |
| 9-1  | PM-840VT-C9-1  | Spring Pin / Federstift / Goupille à ressort 4x50                                     | 1    |
| 10   | PM-840VT-C10   | Crank Shaft / Kurbelwelle / Arbre à manivelle                                         | 1    |
| 11   | PM-840VT-C11   | Spring Pin / Federstift / Goupille à ressort 4x25                                     | 1    |
| 12   | PM-840VT-C12   | Connection Rod / Verbindungsstange / Tige de connexion                                | 1    |
| 13   | PM-840VT-C13   | Sleeve / Hülse / Gaine                                                                | 1    |
| 14   | PM-840VT-C14   | Hex. Socket Cap Screw / Innensechskantschraube / Vis à tête hexagonale 1/4"x1-1/2"    | 1    |
| 15   | PM-840VT-C15   | Hex Nut / Sechskantmutter / Écrou hexagonal 1/4"                                      | 1    |
| 16   | PM-840VT-C16   | Rack / Gestell / étagère                                                              | 1    |
| 17   | PM-840VT-C17   | Bevel Gear / Kegelrad / Engrenage conique                                             | 1    |
| 18   | PM-840VT-C18   | Flange / Flansch / Bride                                                              | 1    |
| 18-1 | PM-840VT-C18-1 | Ball Bearing / Kugellager / Roulement à billes 6202zz                                 | 2    |
| 19   | PM-840VT-C19   | Small Bevel Gear / Kleines Kegelrad / Petit engrenage conique                         | 1    |
| 20   | PM-840VT-C20   | Gear Bracket / Getriebehalterung / Support d'engrenage                                | 1    |
| 21   | PM-840VT-C21   | Set Screw / Stellschraube / Vis de réglage 1/4"x3/8"                                  | 1    |
| 22   | PM-840VT-C22   | Ball Bearing / Kugellager / Roulement à billes 6005zz                                 | 1    |
| 23   | PM-840VT-C23   | Crank Shaft / Kurbelwelle / Arbre à manivelle                                         | 1    |
| 24   | PM-840VT-C24   | C-Clip / C-Clip / Clip en C S-2541                                                    | 2    |
| 25   | PM-840VT-C25   | Hex Socket Cap Screw / Innensechskantschraube / Vis à tête hexagonale M8x35           | 3    |
| 26   | PM-840VT-C26   | Shaft / Welle / Arbre                                                                 | 1    |
| 27   | PM-840VT-C27   | Set Screw / Stellschraube / Vis de réglage M6x6                                       | 2    |
| 28   | PM-840VT-C28   | Key / Schlüssel / Clé 5x5x50                                                          | 1    |
| 29   | PM-840VT-C29   | Thrust Bearing / Axiallager / Palier de butée 51102                                   | 1    |
| 30   | PM-840VT-C30   | Worm Shaft / Schneckenwelle / Arbre à vis sans fin                                    | 1    |
| 31   | PM-840VT-C31   | Key / Schlüssel / Clé 4x4x20                                                          | 1    |
| 32   | PM-840VT-C32   | Gear / Getriebe / Engrenages                                                          | 1    |
| 33   | PM-840VT-C33   | Worm Gear / Schneckengetriebe / Engrenage à vis sans fin                              | 1    |
| 34   | PM-840VT-C34   | Lock Sleeve / Schloßhülse / Manchon de verrouillage                                   | 1    |
| 35   | PM-840VT-C35   | Lock Sleeve (Thread) / Sicherungshülse (Gewinde) / Douille de verrouillage (filetage) | 1    |
| 35-1 | PM-840VT-C35-1 | Spring / Feder / Ressort                                                              | 1    |
| 35-2 | PM-840VT-C35-2 | Hex Socket Cap Screw / Innensechskantschraube / Vis à tête hexagonale M6x25           | 1    |
| 35-3 | PM-840VT-C35-3 | Spring Pin / Federstift / Goupille à ressort 5x20                                     | 2    |
| 36   | PM-840VT-C36   | Lift Handle Crank / Aufzugskurbel Kurbel / Manivelle de la poignée de levage          | 1    |
| 37   | PM-840VT-C37   | Table/ Tabelle / Tableau                                                              | 1    |
| 37-1 | PM-840VT-C37-1 | Connector / Anschluss / Connecteur 3/8"                                               | 1    |
| 38   | PM-840VT-C38   | Column / Säule / Colonne                                                              | 1    |
| 39   | PM-840VT-C39   | Handle / Handgriff / Poignée                                                          | 1    |
| 40   | PM-840VT-C40   | Screw / Schraub / Vis                                                                 | 1    |
| 40-1 | PM-840VT-C40-1 | Washer / Unterlegscheibe / Rondelle                                                   | 1    |
| 41   | PM-840VT-C41   | Clamping / Klemmen / Serrage                                                          | 1    |

## PART LIST / ERSATZTEILLISTE / LISTE DES PIÈCES DÉTACHÉES

**BX-840VT-M**

| Item | Part No.     | Description                                                                       | Qty. |
|------|--------------|-----------------------------------------------------------------------------------|------|
| 42   | PM-840VT-C42 | Cross Cap Screw / Kreuzschlitzschraube / Vis à tête cruciforme 3/16"X3/8"         | 1    |
| 43   | PM-840VT-C43 | Tube / Rohr / Tube                                                                | 1    |
| 44   | PM-840VT-C44 | Connector / Anschluss / Connecteur                                                | 1    |
| 45   | PM-840VT-C45 | Hex Socket Cap Screw / Innensechskantschraube / Vis à tête hexagonale M8x20       | 1    |
| 46   | PM-840VT-C46 | Support Plate / Trägerplatte / Plaque de support                                  | 1    |
| 47   | PM-840VT-C47 | ON/OFF Valve / ON/OFF-Ventil / Vanne ON/OFF                                       | 1    |
| 48   | PM-840VT-C48 | Nozzle / Düse / Buse                                                              | 1    |
| 49   | PM-840VT-C49 | Cross Cap Screw / Kreuzschlitzschraube / Vis à tête cruciforme 3/16"X3/8"         | 1    |
| 50   | PM-840VT-C50 | Tube / Rohr / Tube                                                                | 1    |
| 51   | PM-840VT-C51 | Clamping / Klemmen / Serrage                                                      | 1    |
| 52   | PM-840VT-C52 | Set Screw / Stellschraube / Vis de réglage 1/2"X1"                                | 2    |
| 53   | PM-840VT-C53 | Hex. Head Plugs / Sechskant. Kopf Dübel / Hex. Bouchons à tête hexagonale 3/8"NPT | 1    |
| 54   | PM-840VT-C54 | Spring Pin / Federstift / Goupille à ressort 4x50                                 | 1    |
| 55   | PM-840VT-C55 | Rock Collar / Felskragen / Collier de roche                                       | 1    |

## EXPLOSION DRAWING / ERSATZTEILZEICHNUNG / VUE ÉCLATÉE

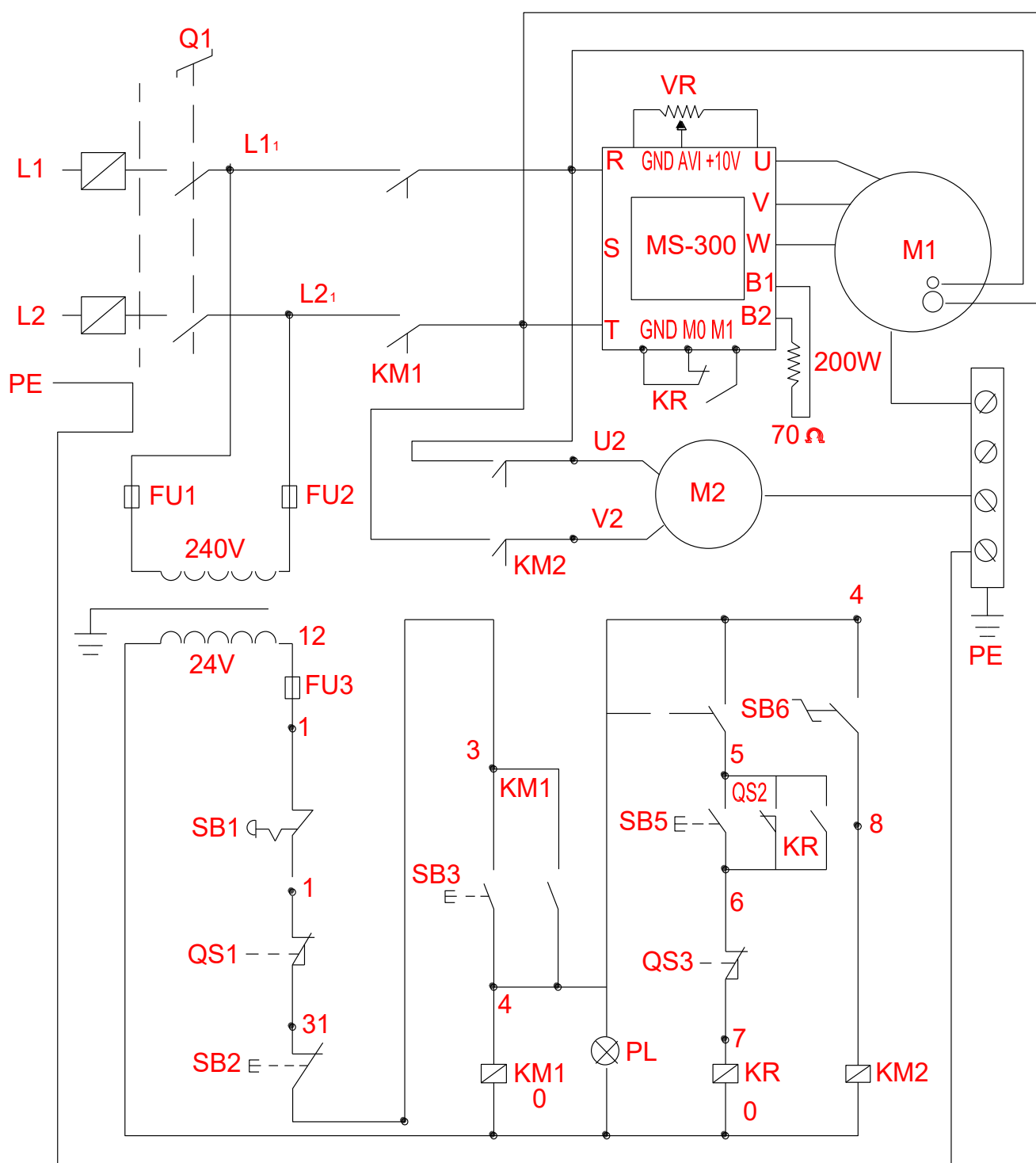
**BX-840VT-M**

## PART LIST / ERSATZTEILLISTE / LISTE DES PIÈCES DÉTACHÉES

**BX-840VT-M**

| Item | Part No.     | Description                                                                                        | Qty. |
|------|--------------|----------------------------------------------------------------------------------------------------|------|
| G1   | PM-840VT-G1  | Spring Pin / Federstift / Goupille à ressort 3x16mm                                                | 1    |
| G2   | PM-840VT-G2  | Support Bracket Bar / Stützbügel Stange / Barre de support                                         | 1    |
| G3   | PM-840VT-G3  | Bushing / Buchse / Douille                                                                         | 1    |
| G4   | PM-840VT-G4  | Spacer / Abstandshalter / Entretoise                                                               | 1    |
| G5   | PM-840VT-G5  | Ratchet Lock Handle / Ratchet Lock-Griff / Poignée de verrouillage Ratchet M6x20                   | 1    |
| G6   | PM-840VT-G6  | C-Clip / C-Clip / Clip en C S30                                                                    | 1    |
| G7   | PM-840VT-G7  | Bracket / Halterung / Support                                                                      | 1    |
| G8   | PM-840VT-G8  | Safety Shield / Schutzschild / Bouclier de sécurité, Lexan 410x210mm                               | 1    |
| G9   | PM-840VT-G9  | Lower Bracket Bar / Untere Halterungsstange / Barre de support inférieure                          | 1    |
| G10  | PM-840VT-G10 | Hex Socket Head Cap Screw / Innensechskantschraube / Vis à tête cylindrique à six pans creux M8x12 | 1    |
| G11  | PM-840VT-G11 | Support Arm / Tragarm / Bras de support                                                            | 1    |
| G12  | PM-840VT-G12 | Hex Nut / Sechskantmutter / Écrou hexagonal 3/8"                                                   | 1    |
| G13  | PM-840VT-G13 | Spring Washer / Federscheibe / Rondelle élastique 3/8                                              | 1    |
| G14  | PM-840VT-G14 | Spacer / Abstandshalter / Entretoise                                                               | 1    |
| G15  | PM-840VT-G15 | Socket Head Cap Screw / Zylinderschraube mit Innensechskant / Vis à tête creuse M8x20              | 1    |
| G16  | PM-840VT-G16 | Lock Bolt with Knob / Schlossbolzen mit Knopf / Boulon d'arrêt avec bouton M8x18                   | 1    |
| G17  | PM-840VT-G17 | Spacer / Abstandshalter / Entretoise                                                               | 1    |
| G18  | PM-840VT-G18 | QSI, Micro Switch / Mikroschalter / Micro-interrupteur (Highly, ED-4-3-32)                         | 1    |
| G19  | PM-840VT-G19 | Screw / Schraub / Vis M4x20                                                                        | 1    |

## ELECTRICAL DIAGRAM / ELEKTRISCHE ANLAGE / SCHÉMA ÉLECTRIQUE



## ELECTRICAL COMPONENT PARTS LIST / TEILELISTE DER ELEKTRISCHEN KOMPONENTEN / LISTE DES PIÉCES DES COMPOSANTS ELECTRIQUES

| Item   | Description                                                                                                             | Data                                                                      |
|--------|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Q1     | Main Disconnect Switch / Haupttrennschalter / Sectionneur principal                                                     | 500VAC,16A,60Hz                                                           |
| FU1    | Fuses / Sicherungen / Fusibles                                                                                          | 500V~10 x 38, .5A                                                         |
| FU2    | Fuses / Sicherungen / Fusibles                                                                                          | 500V~10 x 38, .5A                                                         |
| FU3    | Fuses / Sicherungen / Fusibles                                                                                          | 500V~10 x 38, 3A                                                          |
| KM1    | Contactor / Schütz / Contacteur                                                                                         | Coil 24V, 50/60 Hz, Ui=660V, AC1=25A, AC# 240V, 2.2KW, 380V, 4.0KW, 4<a>> |
| KM2    | Contactor / Schütz / Contacteur                                                                                         | Coil 24V, 50/60 Hz, Ui=660V, AC1=25A, AC #240V, 2.2KW, 380V, 4.0KW, 4<a>> |
| FR     | Over Relay / Über Relais / Par relais                                                                                   | 0.3~0.45A                                                                 |
| KR     | Relay, Reversing / Relais, Rückwärtsgang / Relais, inversion                                                            | 2P, ZMY-2                                                                 |
| TR     | Transformer / Transformator / Transformateur                                                                            | AC, 400V, 24V, 52VA (1.2A)                                                |
| MS-300 | Variable Speed AC Motor Driver / AC-Motortreiber mit variabler Geschwindigkeit / Pilote de moteur AC à vitesse variable | 460V, 4A, 230V, 7A, 1.5KW                                                 |
| BR     | Braking Resistors / Bremswiderstände / Résistances de freinage                                                          | 200W, 400Ω 200W, 70Ω                                                      |
| VR     | Adjust-Speed Switch / Schalter zum Einstellen der Geschwindigkeit / Commutateur de réglage de la vitesse                | 0.05Ω Max.                                                                |
| SB2    | Push Button, Stop / Knopf drücken, Stopp / Bouton poussoir, arrêt                                                       | 600V, PL 24V 1a, 250V, 10A, 1b                                            |
| SB3    | Push Button, Start / Knopf drücken, starten / Bouton poussoir, démarrage                                                | 600V, PL 24V 1a, 250V, 10A, 1b                                            |
| SB1    | Emergency Stop / Not-Halt / Arrêt d'urgence                                                                             | 250V, 10A                                                                 |
| SB4    | Drill / Tapping Switch / Bohr-/Gewindebohrschalter / Interrupteur de perçage/taraudage                                  | 250V, 3A                                                                  |
| SB5    | Push Button, Reverse / Druckknopf, Rückwärtsgang / Bouton-poussoir, marche arrière                                      | 600V, 250V, 10A, 1a                                                       |
| SB6    | Pump Switch, Coolant / Pumpenschalter, Kühlmittel / Interrupteur de pompe, liquide de refroidissement                   | 600V, 250V, 10A, 1a                                                       |
| XB     | Terminal Block / Klemmenblock / Bornier                                                                                 | AC 600V, 20V, 1P, 2X, 10A                                                 |
| QS1    | Limit Switch, Chuck Guard / Endschalter, Futterschutz / Interrupteur de fin de course, protège-mandrin                  | AC-15, 3A / 240V                                                          |
| QS2    | Micro Switch, Reverse / Mikroschalter, Rückwärtsgang / Micro-interrupteur, marche arrière                               | AC, 125V, 12A                                                             |
| QS3    | Micro Switch, Forward / Mikroschalter, Vorwärts / Micro-interrupteur, avant                                             | AC, 250V, 6A                                                              |
| M1     | Motor, Drilling/Tapping / Motor, Bohren/Gewindeschneiden / Moteur, perçage/taraudage                                    | 240V, 2HP                                                                 |
| M2     | Motor, Coolant / Motor, Kühlmittel / Moteur, liquide de refroidissement                                                 | 240V, 1/8HP                                                               |

## TROUBLESHOOTING

**WARNING:** Make sure the electrical disconnect is OFF before working on the machine.

| FAULT                                | PROBABLE CAUSE                                                                                                                                                                                                                      | REMEDY                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Drill Press Does Not Run             | <p>Wrong voltage</p> <p>Emergency switch has been pressed</p> <p>Electrical enclosure door malfunction.</p> <p>Safety guard malfunction because of the limit switch.</p> <p>Limit switch faulty</p> <p>Stop button was pressed.</p> | <p>Make sure the machine voltage matches the nameplate.</p> <p>Turn E-Stop switch clockwise (cw) to reset. Wait 10 sec. for the Delta motor controller to reset. Push the start button.</p> <p>Make sure door is closed properly and switched to ON (locked) position.</p> <p>Make sure limit switch actuator is in the center detent position.</p> <p>Replace limit switch.</p> <p>Wait 10 sec. for the Delta motor controller to reset. Push the start button.</p> |
| Excessive Vibration                  | <p>Improper belt tension.</p> <p>Uneven belt wear. (hard spots)</p> <p>Motor or spindle pulley out of balance.</p> <p>Bad motor.</p>                                                                                                | <p>Adjust belt tension.</p> <p>Replace belt.</p> <p>Balance or replace problem pulley.</p> <p>Replace motor.</p>                                                                                                                                                                                                                                                                                                                                                     |
| Motor Stalls                         | <p>Over feeding.</p> <p>Dull drill or tap.</p> <p>Motor not building up to running speed.</p> <p>Bad motor</p>                                                                                                                      | <p>Reduce feed rate.</p> <p>Sharpen drill &amp; keep sharp.</p> <p>Replace or repair motor.</p> <p>Replace motor.</p>                                                                                                                                                                                                                                                                                                                                                |
| Noisy Operation                      | <p>Noisy spline.</p> <p>Noisy motor</p>                                                                                                                                                                                             | <p>Lubricate spline.</p> <p>Check motor bearings or loose fan motor.</p>                                                                                                                                                                                                                                                                                                                                                                                             |
| Drill or Tool Heats up or Burns Work | <p>Excessive speed.</p> <p>Chips not clearing.</p>                                                                                                                                                                                  | <p>Reduce speed.</p> <p>Use pecking operation to clear chips.</p>                                                                                                                                                                                                                                                                                                                                                                                                    |

| FAULT                                | PROBABLE CAUSE                                                                               | REMEDY                                                                                                                             |
|--------------------------------------|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
|                                      | Dull tool.<br>Feed rate too slow.<br>Failure to use cutting oil or coolant.<br>(on steel.)   | Sharpen tool or replace.<br>Increase feed enough to clear chips.<br>Use cutting oil or coolant on steel.                           |
| Drill Leads Off                      | No drill spot.<br>Cutting lips on drill off center.<br>Quill loose in head.<br>Bearing play. | Center punch or center drill work piece.<br>Regrind drill.<br>Tighten quill.<br>Check bearings and reseal or replace if necessary. |
| Excessive Drill Runout or Wobble.    | Bent drill bit or tool.<br>Bearing play.<br>Drill not seated properly in chuck.              | Replace drill bit or tool.<br>(Do Not attempt to straighten.)<br>Replace or reseal bearings.<br>Loosen, reseal, and tighten chuck. |
| Work or Fixture Comes Loose or Spins | Failure to clamp piece part or work holding device to table.                                 | Failure to clamp piece part or work holding device to table.                                                                       |

## Troubleshooting the Inverter

Prior to operating or adjusting any electronic component, Qualified personnel must take the following aspects into consideration:

- Disconnect machine from the power supply.
- DO NOT use bare hands or metal tools to remove or install sensitive electronic parts.
- As residual voltage still exists in the capacitor after the voltage has been turned off, wait until the light disappears from the lighted display before proceeding with any work.
- Visually inspect the electronic circuit board for any defects.
- NEVER connect the alternating current directly to the output connector (U/V/W) of the speed controller.
- The electronic self-diagnosis program can notify you of situations like motor overloading, voltage fluctuations, etc. When the program detects an error, the machine will stop immediately, and the error will be displayed on the inverter's digital display. Follow the solutions to correct any errors.

| Code                    | Error Description                                                                                                                                                        | Solution                                                                                                                                                                |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| O.C.                    | * The voltage inverter detects that the output current exceeds the normal value.                                                                                         | * Check if motor voltage matches that of the voltage inverter.<br>* Check connection between the motor and the voltage inverter.<br>* Check if the motor is overloaded. |
| O.U.                    | * The voltage inverter of the motor is detected with a D.C. high voltage lateral pressure value that exceeds the acceptable range.                                       | * Check if the circuit input voltage matches that of the voltage inverter.<br>* Frequent on/off and forward/reverse directions result in high voltage self- protection. |
| O.H.                    | * The touch pole cooling device of the motor voltage inverter indicates an overheat condition.                                                                           | * Check if the circuit input voltage matches that of the voltage inverter.<br>* Make sure the cooling device is free from dirt and foreign objects.                     |
| O.L.                    | * The frequency converter detected an output exceeding 150% above normal for 1 minute.                                                                                   | * Check if the motor is overloaded. Tooling may be dull. Check for proper sized tooling, gear speed, and feed rate.                                                     |
| o.c.A<br>o.c.d<br>o.c.n | * Electric current is too large during acceleration.<br>* Electric current is too large during deceleration.<br>* Electric current is too large during normal operation. | * Check if the output connection of the motor adjuster is insulated improperly.                                                                                         |

|                  |                                                                                                                    |                                                                                                                                     |
|------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| G.F.F            | * Grounding or safety wire issues.                                                                                 | * Check if grounding is adequate.<br>* Replace safety fuses.<br>* When the display continues to show the same code, contact Service |
| C.F1~3 or others | * Internal EEPROM can not be read or programmed.<br>* Current sensor error.<br>* U-phase error.<br>* W-phase error | * Contact Service for a return.                                                                                                     |



## ENVIRONMENTAL PROTECTION

Protect the environment.

Your appliance contains valuable materials which can be recovered or recycled. Please leave it at a specialized institution.



This symbol indicates separate collection for electrical and electronic equipment required under the WEEE Directive (Directive 2012/19/EC) and is effective only within the European Union.

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### UMWELTSCHUTZ

Schützen Sie die Umwelt!

Ihr Gerät enthält mehrere unterschiedliche, wiederverwertbare Werkstoffe. Bitte entsorgen Sie es nur an einer spezialisierten Entsorgungsstelle.



Dieses Symbol verweist auf die getrennte Sammlung von Elektro- und Elektronikgeräten, gemäß Forderung der WEEE-Richtlinie (2012/19/EU). Diese Richtlinie ist nur innerhalb der Europäischen Union wirksam.

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### PROTECTION DE L'ENVIRONNEMENT

Protégez l'environnement!

Votre appareil comprend plusieurs matières premières différentes et recyclables. Pour éliminer l'appareil usagé, veuillez l'apporter dans un centre spécialisé de recyclage des appareils électriques.



Ce symbole indique une collecte séparée des équipements électriques et électroniques conformément à la directive DEEE (2012/19/UE). Cette directive n'est efficace que dans l'Union européenne.



## WARRANTY / GARANTIE

TOOL FRANCE guarantees that the supplied product(s) is/are free from material defects and manufacturing faults. This warranty does not cover any defects which are caused, either directly or indirectly, by incorrect use, carelessness, damage due to accidents, repairs or inadequate maintenance or cleaning as well as normal wear and tear.

Further details on warranty (e.g. warranty period) can be found in the General Terms and Conditions (GTC) that are an integral part of the contract.

These GTC may be viewed on the website of your dealer or sent to you upon request.

TOOL FRANCE reserves the right to make changes to the product and accessories at any time.

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TOOL FRANCE garantiert, dass das/die von ihr gelieferte/n Produkt/e frei von Material- und Herstellungsfehlern ist. Diese Garantie deckt keinerlei Mängel, Schäden und Fehler ab, die - direkt oder indirekt - durch falsche oder nicht sachgemäße Verwendung, Fahrlässigkeit, Unfallschäden, Reparaturen oder unzureichende Wartungs- oder Reinigungsarbeiten sowie durch natürliche Abnutzung durch den Gebrauch verursacht werden.

Weitere Einzelheiten zur Garantie können den allgemeinen Geschäftsbedingungen (AGB) entnommen werden.

Diese können Ihnen auf Wunsch per Post oder Mail zugesendet werden.

TOOL FRANCE behält sich das Recht vor, jederzeit Änderungen am Produkt und am Zubehör vorzunehmen.

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TOOL FRANCE garantit que le/les produit(s) fourni(s) est/sont exempt(s) de défauts matériels et de défauts de fabrication. Cette garantie ne couvre pas les défauts, dommages et défaillances causés, directement ou indirectement, par l'utilisation incorrecte ou inadéquate, la négligence, les dommages accidentels, la réparation, la maintenance ou le nettoyage incorrects et l'usure normale.

Vous pouvez trouver de plus amples détails sur la garantie dans les conditions générales (CG). Les CG peuvent être envoyées sur demande par poste ou par e-mail.

TOOL FRANCE se réserve le droit d'effectuer des changements sur le produit et les accessoires à tout moment.

# UK DECLARATION OF CONFORMITY

Edition March 2024

Product:

**VARIABLE SPEED DRILL PRESS**

Model:

**BX-840VT-M**

Brand:

**PROMAC**

Manufacturer or authorized representative:

**TOOL FRANCE**

Unit 1a Stepnell Park

Off Lawford Road

Rugby

CV212UX

United Kingdom

We hereby declare that this product complies with the regulations:

**SUPPLY OF MACHINERY (SAFETY) REGULATIONS 2008**

**ELECTROMAGNETIC COMPATIBILITY REGULATIONS 2016**

Designed in consideration of the standards:

**EN ISO 12100:2010**

**EN 13128:2001+A2:2009**

**EN 12717:2001+A1:2009**

**EN 60204-1:2006+A1:2009**

**EN 61000-6-:2005**

**EN 61000-6-4:2007+A1:2011**

Responsible for the documentation / Dokumentations-Verantwortung / Responsable de la documentation :



**JÉRÔME GERMAIN**

GENERAL MANAGER

DIRECTEUR GÉNÉRAL

**N° de série / serial number :**

At lisses / Hergestellt in / Fait à Lisses

Date :

# CE-CONFORMITY DECLARATION CE-KONFORMITÄTSERKLÄRUNG DÉCLARATION DE CONFORMITÉ CE

Edition March 2024

Product / Produkt / Produit:

Variable speed drill press / Variable-geschwindigkeitsbohrmaschine /

Press pressure a vitesse de vitesse variable

**BX-840VT-M**

Brand / Marke / Marque:

**PROMAC**

Manufacturer or authorized representative / Hersteller oder Bevollmächtigter / Fabricant ou son mandataire:

**TOOL FRANCE**

9 Rue des Pyrénées, 91090 LISSES, France

We hereby declare that this product complies with the regulations

Wir erklären hiermit, dass dieses Produkt der folgenden Richtlinie entspricht

Par la présente, nous déclarons que ce produit correspond aux directives suivantes

**2006/42/EC**

Machinery Directive / Maschinenrichtlinie / Directive Machines

**2014/30/EU**

electromagnetic compatibility / elektromagnetische Verträglichkeit / compatibilité électromagnétique

designed in consideration of the standards

und entsprechend folgender zusätzlicher Normen entwickelt wurde

et été développé dans le respect des normes complémentaires suivantes

**EN ISO 12100:2010**

**EN 13128:2001+A2:2009**

**EN 12717:2001+A1:2009**

**EN 60204-1:2006+A1:2009**

**EN 61000-6-2:2005**

**EN 61000-6-4:2007+A1:2011**

Original instruction manual / Original-Bedienungsanleitung / Notice d'instruction Originale

Responsible for the documentation / Dokumentations-Verantwortung / Responsable de la documentation :



**JÉRÔME GERMAIN**

GENERAL MANAGER

DIRECTEUR GÉNÉRAL

**N° de série / serial number :**

At lisses / Hergestellt in / Fait à Lisses

Date :

