Holemaker
Drilling Solutions By ITM®

# PRO 35 AUTO

## MAGNETIC BASE DRILLING MACHINE

## OPERATOR'S MANUAL


**Part No.**
**HMPRO35AUTO**

**Ver: 2.0**

**www.itmtools.com.au**

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Industrial Tool & Machinery Sales (hereinafter referred to as ITMS) will, within twelve (12) months from the original date of purchase, repair or replace any goods found to be defective in materials or workmanship.
This warranty is void if the item has been damaged by accident, neglect, improper service or other causes not arising out of defects in materials or workmanship. This warranty does not apply to machines and/or components which have been altered, changed, or modified in any way, or subjected to overloading or use beyond recommended capacities and specifications. Worn componentry due to normal wear and tear is not a warranty claim. Goods returned defective shall be returned prepaid freight to ITMS or agreed repair agent, which shall be the buyer's sole and exclusive remedy for defective goods. ITMS accepts no additional liability pursuant to this guarantee for the costs of travelling or transportation of the product or parts to and from ITMS or the service agent or dealer, such costs are not included in this warranty.

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# 1. GENERAL INFORMATION

## 1.1. Application

The PRO 35 AUTO is a drilling machine designed to drill holes with diameters of up to 35 mm by using annular cutters. The machine can also drill holes with diameters of up to 16 mm by using twist drill bits. It also allows countersinking holes with diameters of up to 40 mm (1-9/16″) by using countersinks.

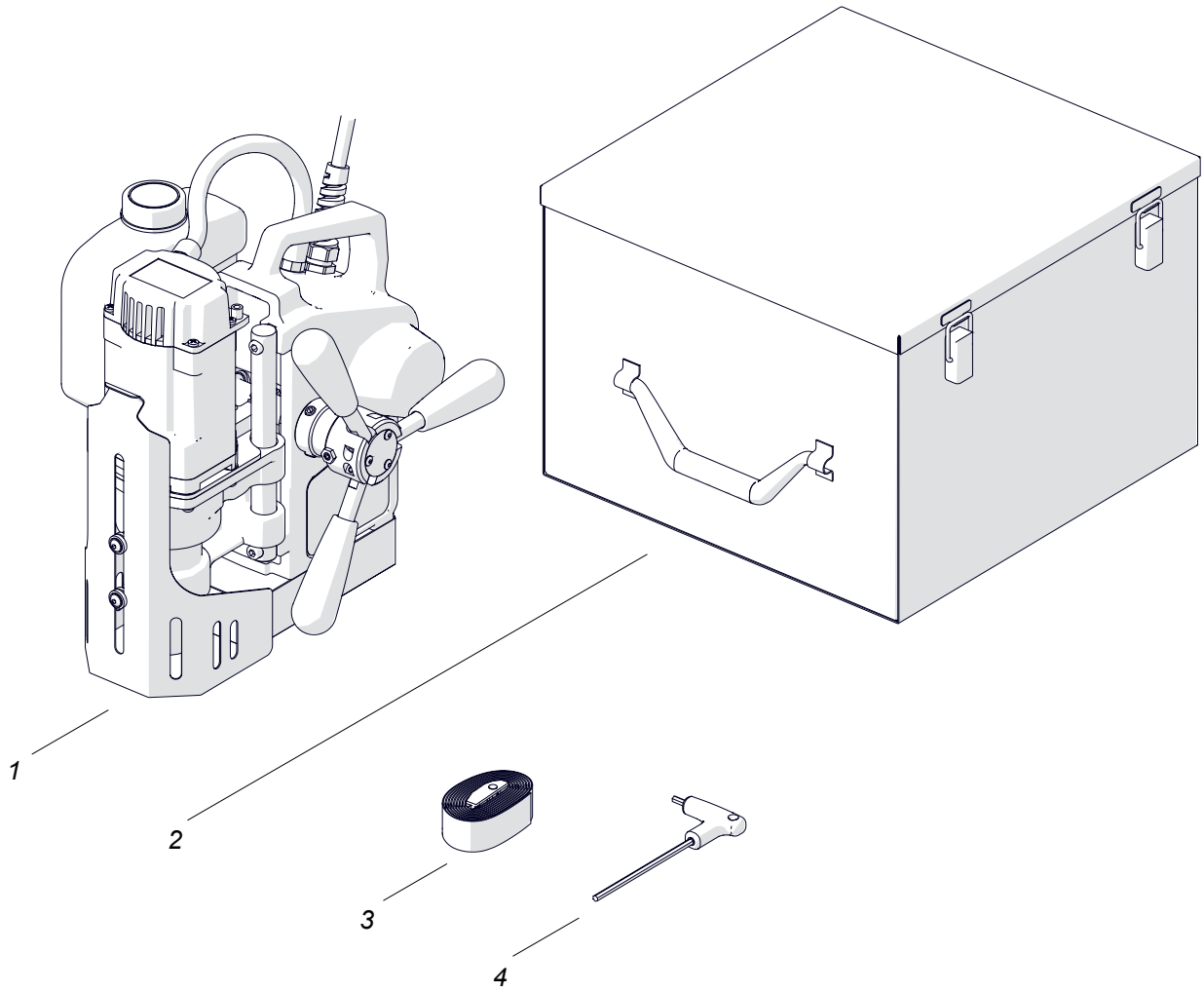
The drilling machine can work in automatic or manual mode.

The electromagnetic base clamps the machine to ferromagnetic surfaces. This makes sure that the operator is safe and the machine works correctly. A safety strap protects the machine from falling in case of a clamping loss.

## 1.2. Technical data

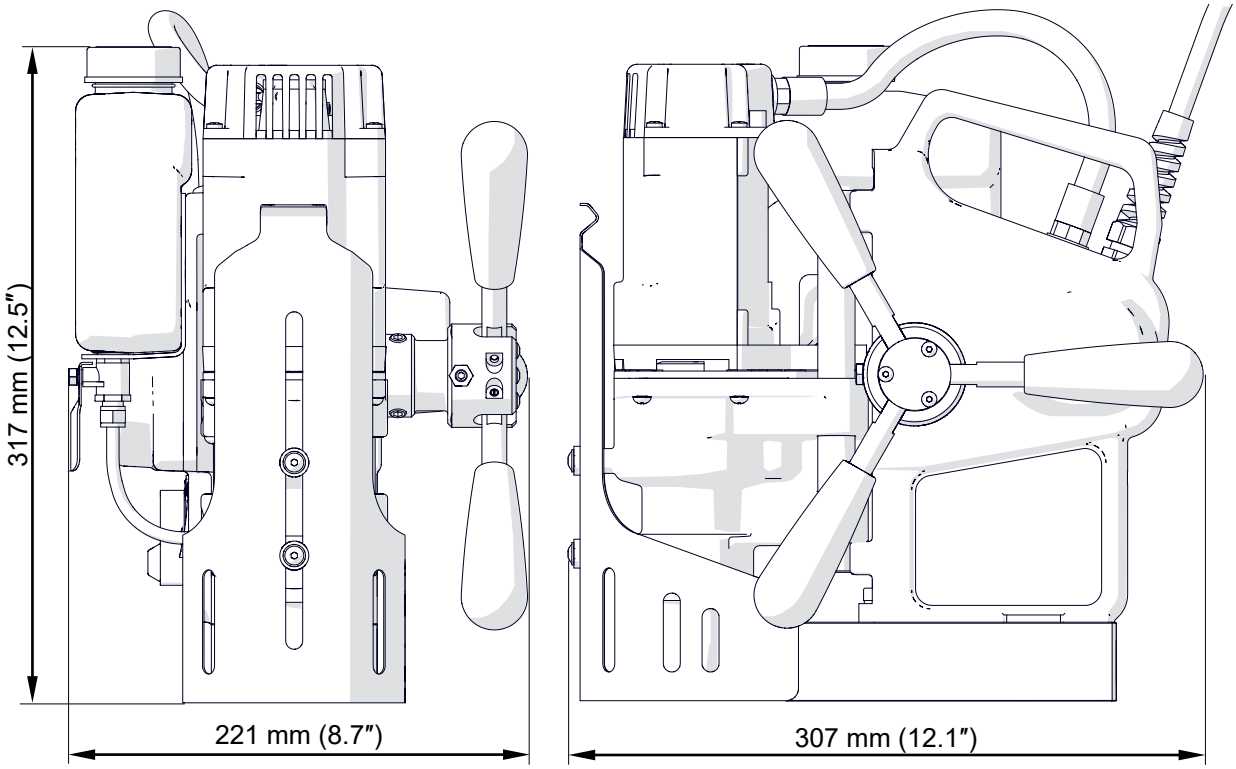
| | |
|---|---|
| Voltage | 1~ 220–240 V, 50–60 Hz<br>1~ 110–120 V, 50–60 Hz |
| Power | 1020 W |
| Tool holder | 19 mm (3/4″) Weldon |
| Maximum drilling diameter with an annular cutter | 35 mm |
| Maximum drilling diameter with a twist drill bit | 16 mm (1/2″) Weldon |
| Maximum countersinking diameter | 40 mm (1-9/16″) |
| Maximum drilling depth with an annular cutter | 52 mm |
| Clamping force<br>(surface with the thickness of 25 mm and roughness $R_a$ = 1.25) | 9,000 N |
| Electromagnetic base dimensions | 80 mm × 160 mm × 38 mm<br>3.1″ × 6.3″ × 1.5″ |
| Stroke | 70 mm (2.8″) |
| Rotational speed with load | 350 rpm |
| Rotational speed with no load | 580 rpm |
| Minimum workpiece thickness | 6 mm (0.23″) |
| Protection class | I |
| Noise level | More than 70 dB |
| Required ambient temperature | 0–40°C (32–104°F) |
| Weight | 13.5 kg (30 lbs) |

## 1.3. Equipment included

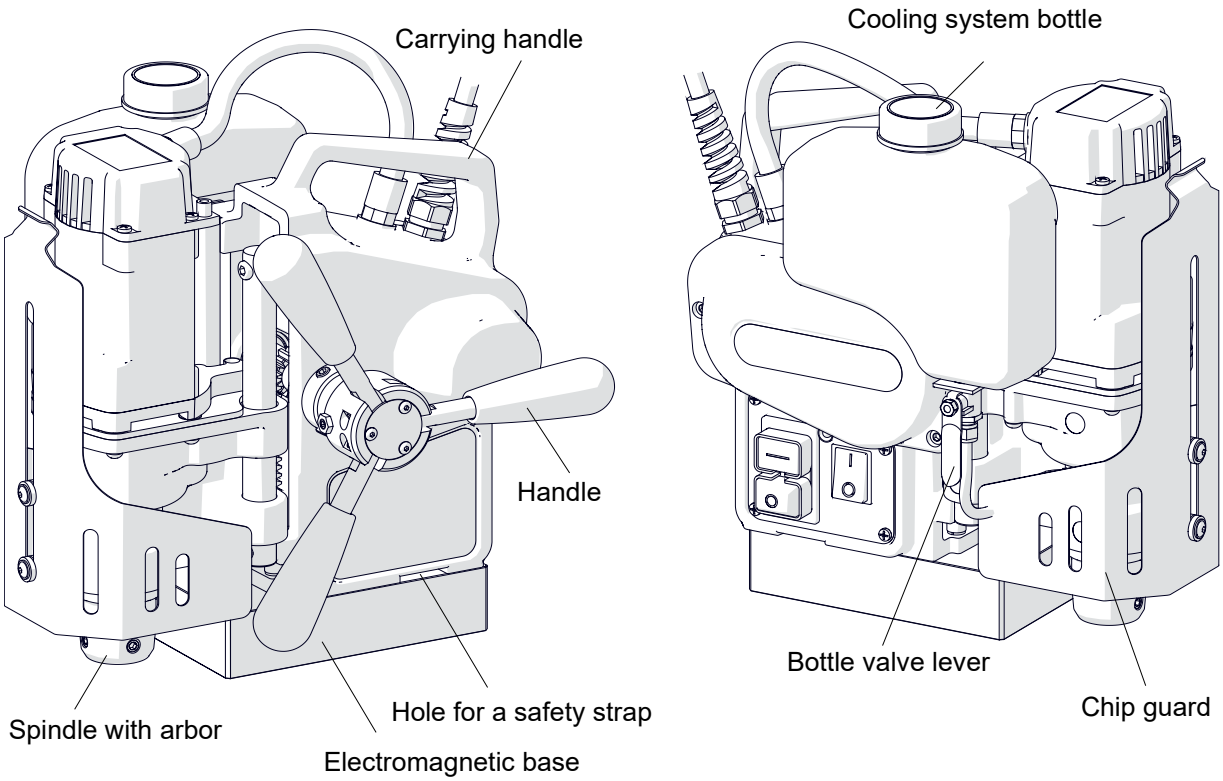


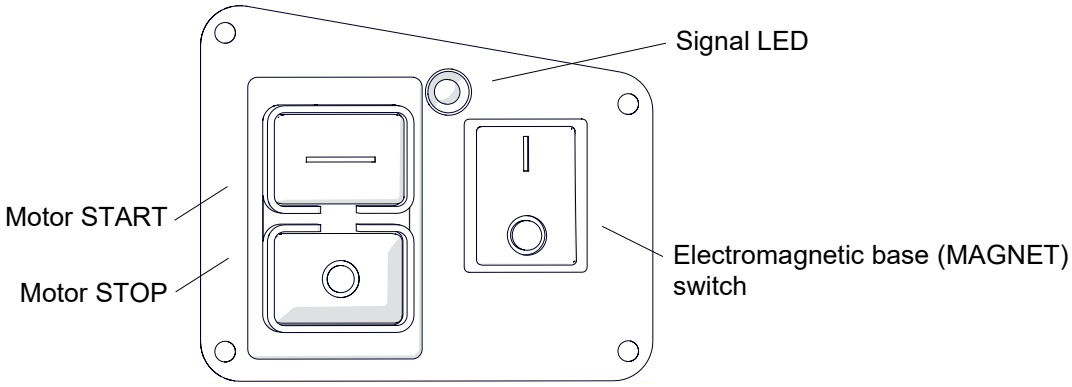

| | | |
|---|---|---|
| 1 | Drilling machine | 1 unit |
| 2 | Metal box | 1 unit |
| 3 | Safety strap | 1 unit |
| 4 | 4 mm hex wrench | 1 unit |
| – | Operator's Manual | 1 unit |

## 1.4. Dimensions



## 1.5. Design


Carrying handle
Handle
Spindle with arbor
Hole for a safety strap
Electromagnetic base
Cooling system bottle
Bottle valve lever
Chip guard


Signal LED
Motor START
Motor STOP
Electromagnetic base (MAGNET) switch

## 2. SAFETY PRECAUTIONS

1. Before use, read this Operator's Manual and complete a training in occupational safety and health.
2. Use only in applications specified in this Operator's Manual.
3. Make sure that the machine has all parts and they are genuine and not damaged.
4. Make sure that the specifications of the power source are the same as those specified on the rating plate.
5. Connect the machine to a correctly grounded power source. Protect the power source with a 16 A fuse for 230 V or a 32 A fuse for 115 V. If you are going to work on building sites, supply the machine through an isolation transformer with class II protection only.
6. Set the MAGNET switch to 'O' before you move the machine. Use carrying handle to move the machine.
7. Do not carry the machine by the power cord and do not pull the cord. This can cause damage and electric shock.
8. Keep untrained bystanders away from the machine.
9. Before each use, ensure the correct condition of the machine, power source, power cord, plug, control panel, and tools.
10. Before each use, make sure that no part is cracked or loose. Make sure to maintain correct conditions that can have an effect on the operation of the machine.
11. Keep the machine dry. Do not expose the machine to rain, snow, or frost.
12. Do not stay below the machine that is put at heights.
13. Keep the work area well lit, clean, and free of obstacles.
14. Use the set screws to tighten the tool. Remove wrenches from the work area before you connect the machine to the power source.
15. Do not use tools that are dull or damaged.
16. Unplug the power cord before you install and remove tools. Use protective gloves to install and remove tools.
17. Use annular cutters without the pilot pin only when you drill incomplete through holes.
18. Do not make holes/countersinks whose diameter or depth differ from those specified in the technical data.
19. Do not use near flammable materials or in explosive environments.

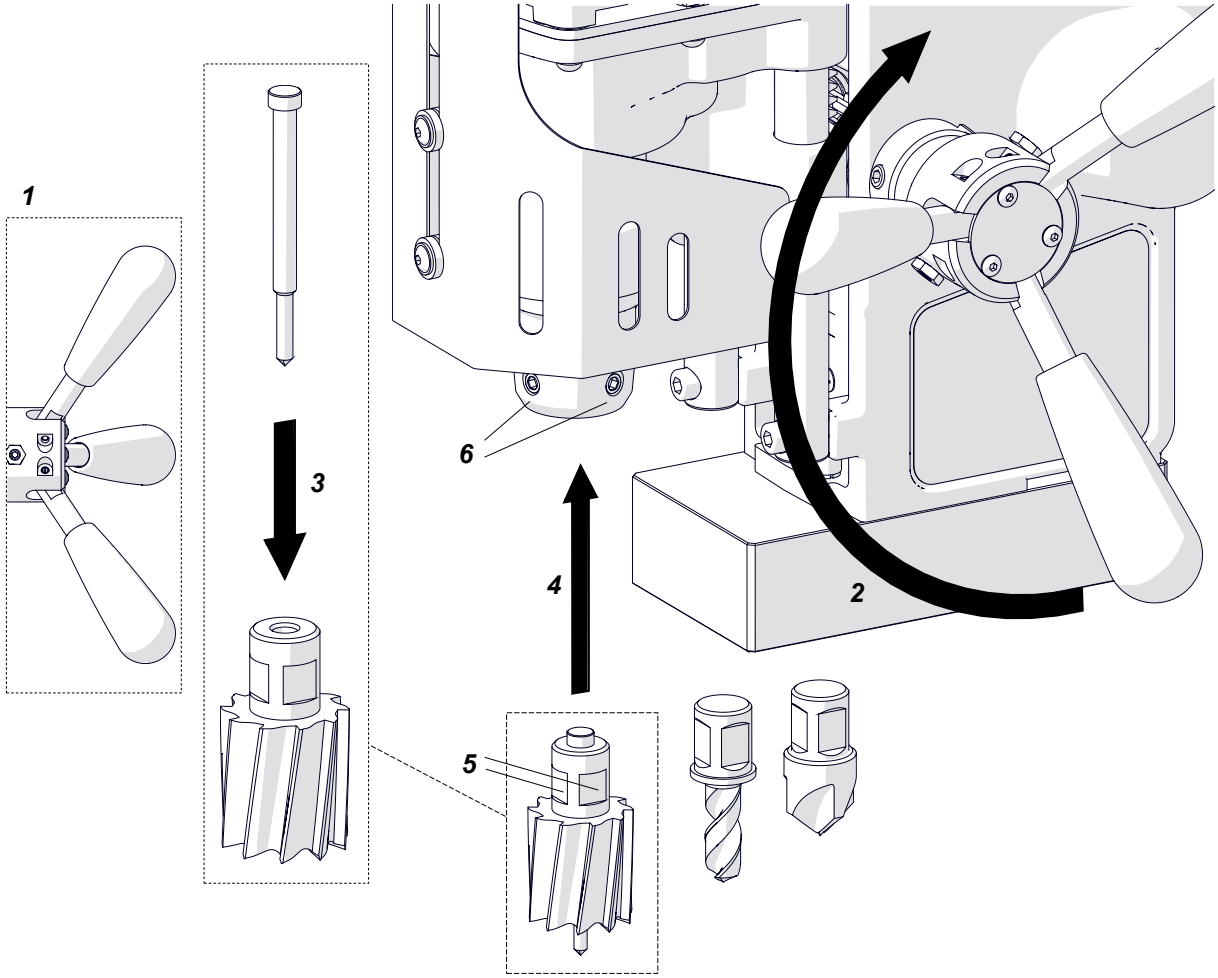
20. Do not use on surfaces that are rough, not flat, not rigid, or have rust, paint, chips, or dirt.
21. Use the safety strap to attach the machine to a stable structure. Put the strap through the hole in the machine body. In the horizontal position, attach the strap to the carrying handle. Do not put the strap into the buckle from the front.
22. Use eye and ear protection and protective clothing. Do not use loose clothing.
23. We do not recommend work on workpieces thinner than 6 mm (0.23″). The clamping force depends on the workpiece thickness and is much lower for thin plates.
24. Each time before you put the machine on the workpiece, rub the workpiece with coarse-grained sandpaper. Make sure that the bottom of the base is in full contact with the workpiece.
25. Do not touch chips or moving parts. Do not let anything catch in moving parts.
26. After each use, clean the machine and the tool. Do not remove chips with bare hands.
27. Unplug the power cord before you do maintenance or install/remove parts.
28. Repair only in a service center appointed by the seller.
29. If the machine falls, is wet, or has any damage, stop the work and immediately send the machine to the service center for check and repair.
30. Do not leave the machine when it operates.
31. If you are not going to use the machine, remove the tool from the holder. Then, remove the machine from the work area and keep it in a safe and dry place.
32. If you are not going to use the machine for an extended period, put anti-corrosion material on the steel parts.

# 3. STARTUP AND OPERATION

## 3.1. Installing the tools

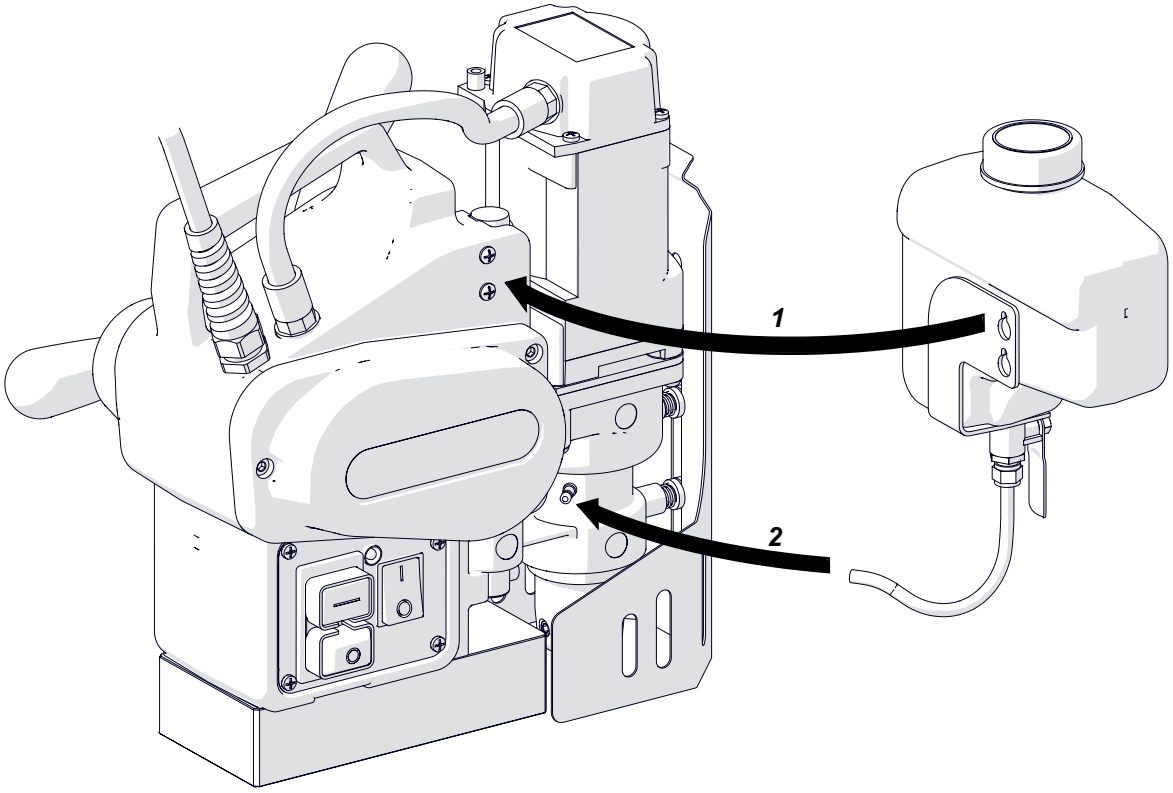
Unplug the power cord. Set the handles to position (*1*), and turn them to the right (*2*) to lift the motor. Use gloves to put the correct pilot pin into the annular cutter (*3*). Use a dry cloth to clean the cutter. Put the annular cutter (twist drill bit or countersink) into the spindle with arbor (*4*) to align the flat surfaces (*5*) with the set screws (*6*). Use the 4 mm hex wrench to tighten the screws.

To remove the tool, loosen the screws (*5*) with the 4 mm hex wrench.



## 3.2. Installing the cooling system bottle

Put the cooling system bottle on the screws (*1*). Attach the hose to the fitting (*2*).




## 3.3. Monitoring system of the clamping force

The drilling machine has a system that monitors the clamping force of the electromagnetic base. The force will be lower if there is rust, paint, chips, or dirt. The force will be lower also if the surface is thin, rough, not flat, not rigid, the voltage is lower than required, or the bottom of the base is worn.

Low clamping force will be indicated by the LED diode flashing green. The clamping force on a 5 mm thick surface is only about 25% of the force that you can get on a flat plate that is 25 mm (1″) thick.

## 3.4. Preparing

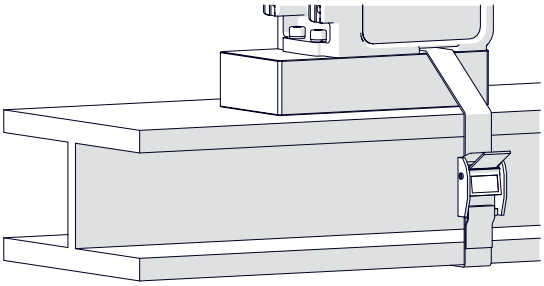
Before use, clean steel parts, including the spindle, from anti-corrosion material used to preserve the machine for storage and transport.

Select the tool that matches the required hole diameter. Use a dry cloth to clean the spindle and the tool. Then, install the tool as described before.

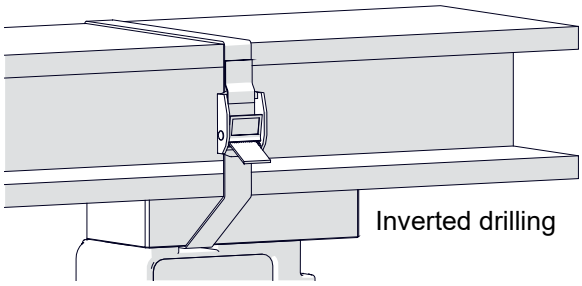
Put the machine on a flat ferromagnetic surface with the thickness of at least 6 mm (0.23″). Make sure that there is no rust, paint, chips, or dirt. They decrease the clamping force. The force will be lower also if the surface is thin, rough, not flat, not rigid, the voltage is lower than required, or the bottom of the base is worn.

Connect the machine to the power source. Set the MAGNET switch to 'I' to turn on the clamping. Some types of steel (non-ferromagnetic) do not conduct magnetic flux so the machine cannot clamp onto them.

Use the safety strap to prevent fall and injury if the machine loses the clamping. Attach the machine to a stable structure by putting the strap through the hole in the machine body. In the horizontal position, attach the strap to the carrying handle. Make sure that the strap is tight and not twisted. If the machine comes loose from the workpiece and hangs on the strap, replace the strap. Do not put the strap into the buckle from the front.

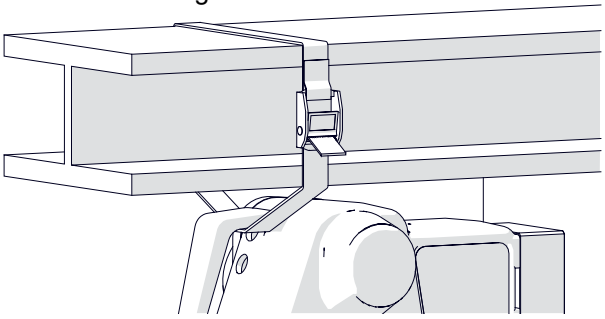


Vertical drilling

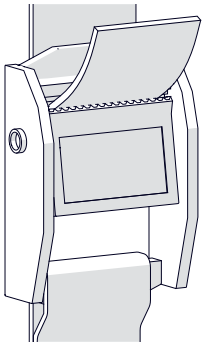


Inverted drilling

Horizontal drilling



CORRECT ✓



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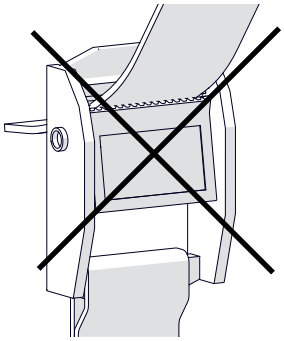
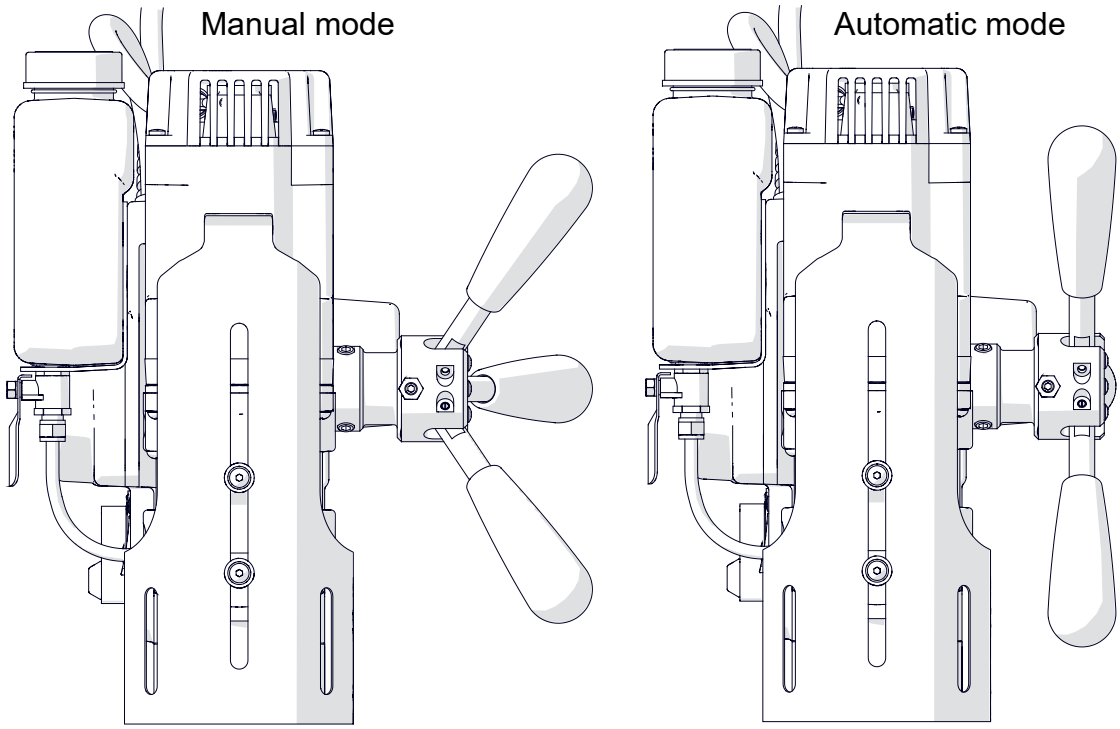


When you use an annular cutter, install the cooling system and fill it with coolant. Do not use only water as the coolant. But you can mix water and drilling oil. Then, make sure that the cooling system works correctly. To do this, lightly loosen the bottle cap and use the lever to open the valve. Then, turn the handles to the left to apply a light pressure on the pilot pin. The coolant should fill the system and start flowing from the cutter.

The cooling system works by gravity. Thus, in the inverted or horizontal position, use coolants under pressure or in the form of spray or paste.

## 3.5. Drilling

Set the handles as shown in the left figure to set the manual feed mode. Turn the handles to the left to put the tool tip above the workpiece.




Drill with the twist drill bit or countersink holes only in the manual mode. Drill in the manual mode also on thin workpieces and when the LED shows that the clamping force is low.

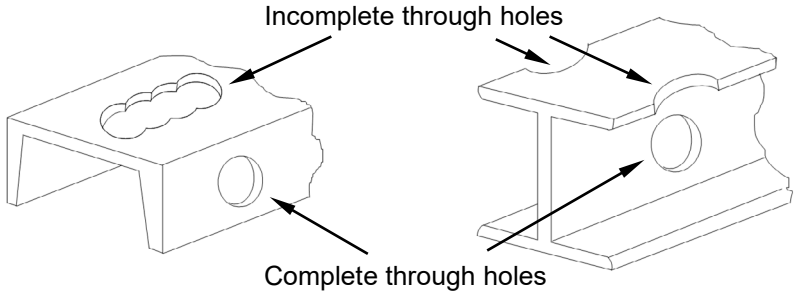
To work in the manual mode set the handles as shown in the left figure. Press the green START button to start the motor. Next, turn the handles to the left to put the tool into the workpiece. In the manual mode, keep the constant feed, do not release the handles, and do not switch to the automatic mode. If you do not obey these instructions, the motor may stop.

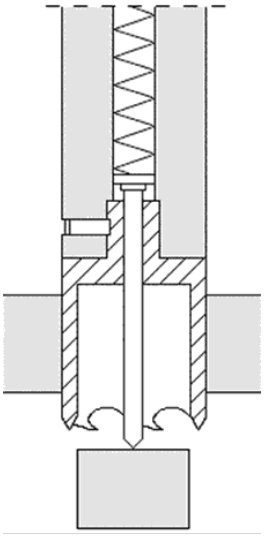
To drill in the automatic mode, press the green START button to start the motor. Then, set the handles as shown in the right figure. Then, the drilling machine starts putting the tool into the workpiece. In the automatic mode, do not press the levers. If you press the levers, the machine will work incorrectly.

The machine recognizes the end of drilling and stops the feed and the motor after the hole is made. But, if the tool is new, sharp, its diameter is small, or the workpiece is soft, the feed and motor may not stop immediately after the hole is made. Then, they will stop in the lowest position of the motor.

**When the annular cutter goes through the workpiece, the slug core is pushed out with a large force.**

When you use an annular cutter, drill only through holes. Drill incomplete through holes only in the manual mode and without the pilot pin.



The table that follows shows the meaning of the LED colors.

| Flash code | Meaning | Description |
|---|---|---|
| | Strong surface. | Ready to work. |
| | Weak surface. Low clamping force. | Work only in the manual mode. |
| | Defective control system. | Contact the service center for repair. |
| | Emergency stop.<br>Feed motor overload. | Retract the tool from the workpiece, and press the green START button to start the drilling again.<br><br>If the problem continues, contact the service center for repair. |

| Flash code | Meaning | Description |
|---|---|---|
|  | Emergency stop.<br>Spindle motor overload. | Retract the tool from the workpiece, and press the green START button to start the drilling again.<br><br>Use coolant. Make sure that the tool is sharp. If you work in the manual mode, keep the constant feed. |
|  | Emergency stop.<br>Machine tilt or vibrations. | Retract the tool from the workpiece, and press the green START button to start the drilling again.<br><br>Make sure that the surface is stable, there is no oil, the clamping force is sufficient, and the tool is sharp. |
|  | Emergency stop.<br>The base is not in contact with the surface. | Retract the tool from the workpiece, and press the green START button to start the drilling again.<br><br>Make sure that the surface is stable, there is no oil, the clamping force is sufficient, and the tool is sharp. |

**The green color is indicative only. It does not make sure that the machine will always be in contact with the surface. Thus, in each position protect the machine with the safety strap.**

After the hole is made, set the handles to the position related to the manual mode. Then, retract the tool from the workpiece. Before you move the machine, set the MAGNET switch to 'O' to turn off the base.

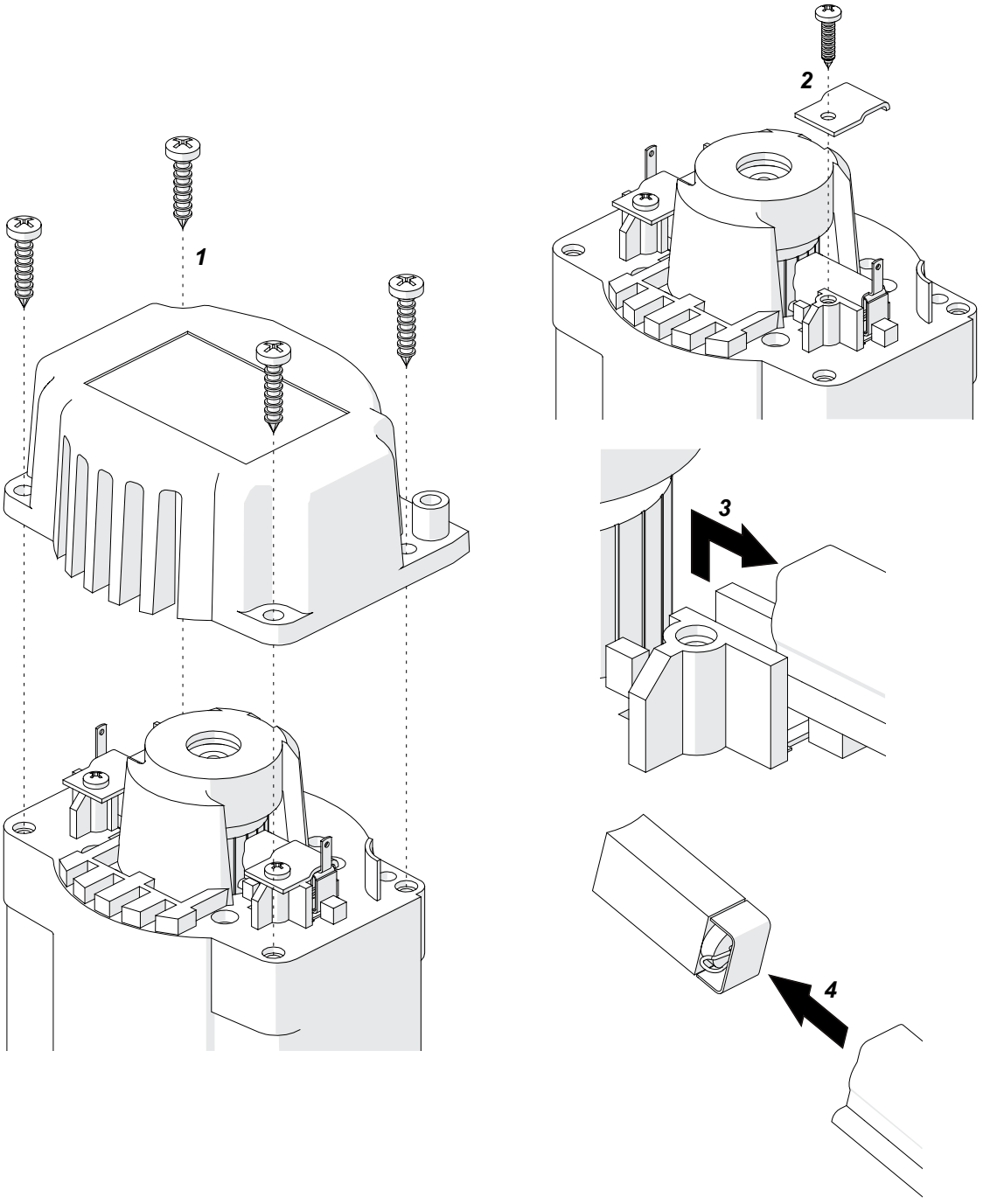
After the work is finished, turn off the motor and the base, and then unplug the power cord. Clean the machine and the tool, and then remove the machine from the work area.

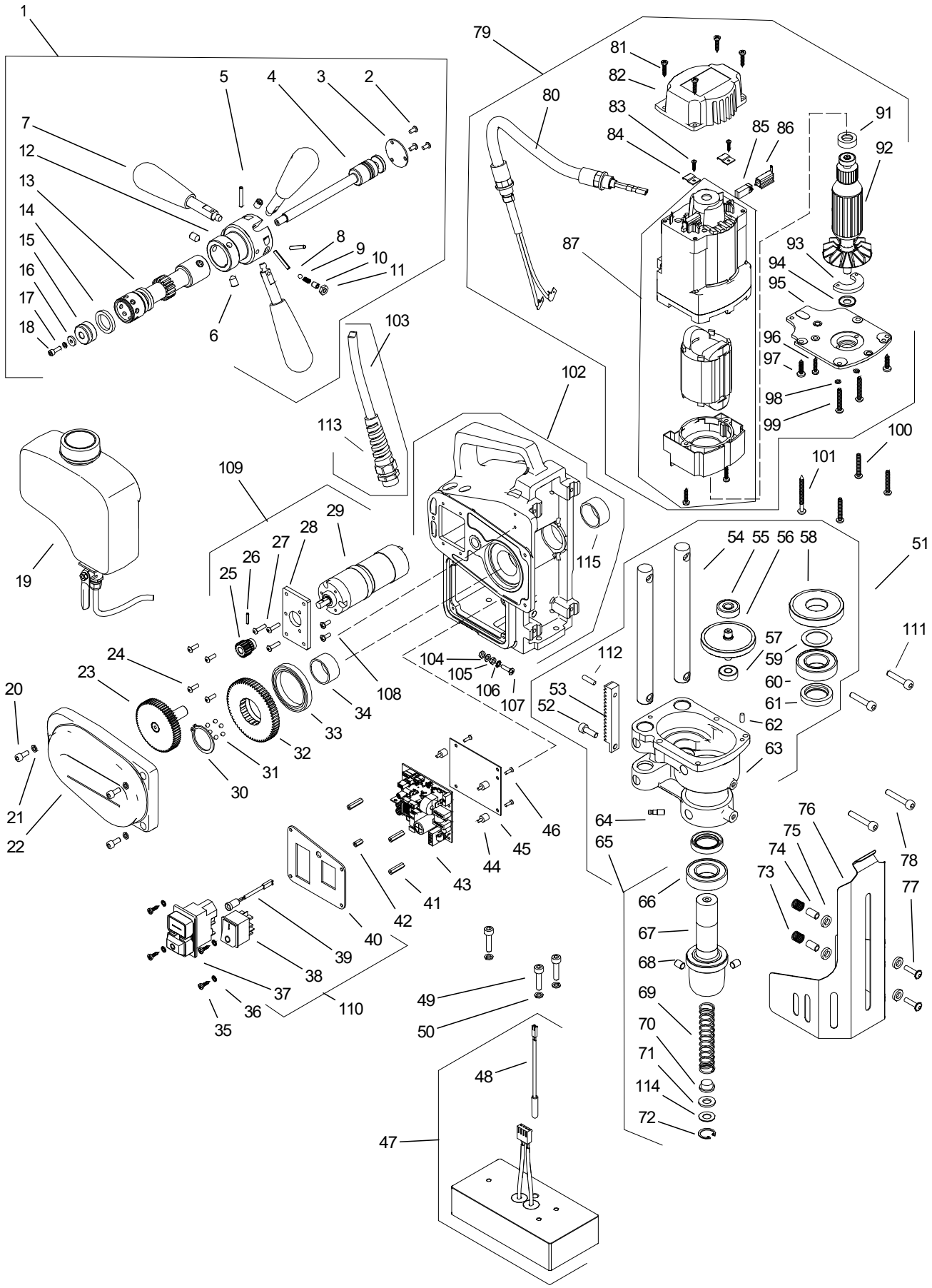
Tighten the bottle cap, close the valve, and then press the pilot pin to remove the coolant that remains in the cooling system. Before you put the machine into the box, remove the bottle, and use gloves to remove the tool from the holder.

## 3.6. Replacing the motor brushes

Every 100 work hours, check the condition of the brushes. To do this, unplug the power cord and remove the cover (*1*). Next, remove the pressing plate (*2*), and then remove the brush holder (*3*) and the brush (*4*). If the brush is shorter than 5 mm (0.2″), replace the two brushes with new ones.

Install in reverse sequence. Then, let the motor operate with no load for 20 minutes.

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| ITEM | PART NUMBER | DESCRIPTION | Q-TY |
|---|---|---|---|
| 1 | ZSP-0672-02-00-00-0 | LEVERS ASSY | 1 |
| 2 | WKR-000091 | HEX SOCKET BUTTON HEAD SCREW M4x8 | 3 |
| 3 | PKR-0672-02-02-00-0 | COVER | 1 |
| 4 | WLK-0502-05-05-00-1 | SWITCHING SHAFT | 1 |
| 5 | KLK-000015 | SPRING PIN 4x26 | 3 |
| 6 | WASP-B10/1050 | HEX SOCKET SET SCREW WITH CONE POINT M8x12 | 3 |
| 7 | SPPRO35A/HANDLE | SPOKE HANDLE INCLUDING KNOB (ASSY) | 3 |
| 8 | KUL-000003 | BEARING BALL 5 | 2 |
| 9 | SPR-0203-03-09-00-0 | LATCH SPRING | 2 |
| 10 | WKR-000058 | HEX SOCKET SET SCREW WITH FLAT POINT M6x8 | 2 |
| 11 | NKR-000035 | LOW HEX NUT M6 | 2 |
| 12 | KRP-0672-02-01-00-0 | LEVERS HOLDER | 1 |
| 13 | WLK-0502-05-04-00-0 | DRIVEN SHAFT | 1 |
| 14 | SPPRO350121 | SEAL | 1 |
| 15 | TLJ-0502-05-06-00-0 | CLUTCH SLEEVE | 1 |
| 16 | PDK-0502-05-07-00-0 | WASHER 4.3x12x2 | 1 |
| 17 | PDK-000042 | SPRING WASHER 4.1 | 1 |
| 18 | SRB-000062 | HEX SOCKET HEAD CAP SCREW M4x12 | 1 |
| 19 | SPPRO35A010 | COOLANT BOTTLE ASSY | 1 |
| 20 | SRB-000078 | HEX SOCKET HEAD CAP SCREW M5x12 | 3 |
| 21 | PDK-000044 | SPRING WASHER 5.1 | 3 |
| 22 | SPPRO35A007 | GEARCASE COVER ASSEMBLY | 1 |
| 23 | SPPRO35A36 | IDLE GEAR | 1 |
| 24 | WKR-000093 | HEX SOCKET BUTTON HEAD SCREW M4x12 | 4 |
| 25 | KOL-0502-04-02-00-0 | GEAR z=16 | 1 |
| 26 | KLK-000005 | SPRING DOWEL PIN 3x14 | 1 |
| 27 | WKR-000095 | HEX SOCKET BUTTON HEAD SCREW M4x16 | 3 |
| 28 | PLY-0502-04-01-00-0 | MOTOREDUCER PLATE | 1 |
| 29 | SLN-000056 | MOTOREDUCER i=246 | 1 |
| 30 | SPAD40-04-01-04 | EXTERNAL RETAINING RING 30z | 1 |
| 31 | KUL-000003 | BEARING BALL | 8 |
| 32 | KOL-0502-01-02-00-0 | GEAR z=60 | 1 |
| 33 | LOZ-000080 | BALL BEARING 45x58x7 | 1 |
| 34 | TLJ-0502-99-01-00-0 | SELF-LUBRICATING SLEEVE 28x32x12 | 1 |
| 35 | WKR-000415 | CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.5x13 | 4 |
| 36 | PDK-000161 | EXTERNAL TOOTH LOCK WASHER 3.7 | 4 |
| 37 | WLC-000007 | SWITCH START-STOP - 230V | 1 |
| 37 | WLC-000005 | SWITCH START-STOP - 115V | 1 |
| 38 | SPHM300405 | MAGNET SWITCH | 1 |
| 39 | WZK-0502-03-02-00-1 | DIODE WIRE SET | 1 |
| 40 | MSK-0672-99-01-00-0 | PANEL PLATE | 1 |
| 41 | TLJ-000042 | SLEEVE M3x20 | 3 |
| 42 | TLJ-000023 | SLEEVE M3x10 | 1 |
| 43 | MDL-0672-80-01-00-0 | ELECTRONIC CONTROLLER – 230V | 1 |
| 44 | WBR-000004 | VIBROISOLATOR | 4 |
| 45 | PLY-0277-00-02-00-1 | INSULATION PLATE | 1 |
| 46 | WKR-000156 | COUNTERSUNK HEAD SCREW M3x10 | 4 |
| 47 | PDS-0502-12-00-00-0 | ELECTROMAGNETIC BASE | 1 |
| 48 | WZK-0242-04-00-00-0 | REED RELAY WIRE SET ASSY | 1 |
| 49 | SRB-000117 | HEX SOCKET HEAD CAP SCREW M6x25 | 3 |

| ITEM | PART NUMBER | DESCRIPTION | Q-TY |
|---|---|---|---|
| 50 | PDK-000046 | SPRING WASHER 6.1 | 3 |
| 51 | RDK-0440-02-00-00-5 | GEARBOX ASSEMBLY | 1 |
| 52 | SRB-000111 | HEX SOCKET HEAD CAP SCREW M6x18 | 1 |
| 53 | SPPRO350212 | GEAR RACK | 1 |
| 54 | SPPRO350207 | GUIDE | 2 |
| 55 | LOZ-000072 | BALL BEARING 9x26x8 | 1 |
| 56 | SPPRO35023 | PINION ASSY | 1 |
| 57 | LOZ-000053 | BALL BEARING 8x22x7 | 1 |
| 58* | SPPRO35025 | GEAR z=52 | 1 |
| 59* | PDK-000264 | DISTANCE RING | 1 |
| 60* | LOZ-000047 | BALL BEARING 25x47x12 | 1 |
| 61* | SPHM30020105 | SEAL 25x37x7 | 2 |
| 62 | KLK-000044 | DOWEL PIN 5n6x10 | 1 |
| 63 | KRP-0440-02-01-00-3 | GEARBOX ASSY | 1 |
| 64 | SPAD40-05-03 | HOSE FITTING | 1 |
| 65* | WRZ-0272-02-02-00-1 | SPINDLE ASSY | 1 |
| 66 | LOZ-000048 | BALL BEARING 25x47x12 | 1 |
| 67 | KRP-0272-02-02-01-0 | SPINDLE BODY | 1 |
| 68 | WKR-000543 | HEX SOCKET SET SCREW WITH FLAT POINT M8x10 | 2 |
| 69 | SPHM3020203 | SPRING | 1 |
| 70 | SPPRO35020202 | PLUNGER | 1 |
| 71 | KZK-0279-02-01-06-2 | RUBBER DISC | 1 |
| 72 | SPHM30020205 | INTERNAL RETAINING RING 19w | 1 |
| 73 | SPPRO3510 | PUSH SPRING | 2 |
| 74 | SPPRO3509 | BOTTOM SLEEVE | 2 |
| 75 | SPPRO3511 | NYLON WASHER 8.1x14x3 | 4 |
| 76 | SPPRO3504 | CHIP GUARD ASSY - BLUE | 1 |
| 77 | SPPRO3512 | HEX SOCKET ROUND HEAD SCREW WITH FLANGE M5x20 | 2 |
| 78 | SRB-000122 | HEX SOCKET HEAD CAP SCREW M6x35 | 2 |
| 79 | SLN-0502-13-00-00-1 | MOTOR ASSY – 230V | |
| 80 | PWD-0502-13-01-00-0 | MOTOR CORD | 1 |
| 81 | SPHM300304 | PAN HEAD SELF-TAPPING SCREW 3.9x19 | 4 |
| 82 | SPPRO350312 | MOTOR COVER | 1 |
| 83 | WKR-000326 | CROSSRECESSED COUNTERSUNK HEAD SHEET METAL SCREW 2,9x13 | 2 |
| 84 | SPPRO350315 | BRUSH HOLDER PRESSURE PLATE | 2 |
| 85 | SPPRO350314 | MOTOR BRUSH 6x9x17 (SET OF 2) | 2 |
| 86 | SPPRO350313 | BRUSH HOLDER | 2 |
| 87 | OBD-0440-99-03-00-1 | MOTOR COVER WITH STATOR ASSY – 230V | 1 |
| 91 | SPPRO350318 | BEARING INSERT 19x7,5 | 1 |
| 92 | SPPRO35039 | ROTOR – 230V | 1 |
| 93 | SPPRO36AD13 | GEARBOX COVER RING | 1 |
| 94 | SPPRO1065 | SEAL | 1 |
| 95 | PKR-0440-03-03-00-1 | GEARBOX COVER | 1 |
| 96 | WKR-000236 | SELF-TAPPING SCREW 5x16 | 1 |
| 97 | WKR-000301 | SCREW FOR PLASTIC TW 5x14 | 2 |
| 98 | PDK-000042 | SPRING WASHER 4,1 | 2 |
| 99 | SRB-000062 | HEX SOCKET BOLT M4x12 | 2 |
| 100 | SPHM3020 | SELF-TAPPING SCREW 5x30 | 3 |
| 101 | WKR-000237 | SELF-TAPPING SCREW 5x50 | 1 |
| 102 | SPPRO35A006 | MAIN BODY ASSY | 1 |
| 103 | PWD-0502-18-00-00-0 | POWER CORD 230V WITH STRAIN RELIEF ASSY | 1 |

| ITEM | PART NUMBER | DESCRIPTION | Q-TY |
|---|---|---|---|
| 104 | NKR-000013 | HEX NUT M4 | 2 |
| 105 | PDK-000016 | ROUND WASHER 4.3 | 1 |
| 106 | PDK-000166 | EXTERNAL TOOTH LOCK WASHER 4.3 | 1 |
| 107 | WKR-000113 | CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x16 | 1 |
| 108 | WKR-000183 | CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x10 | 2 |
| 109 | SPPRO35A009 | MOTOREDUCER ASSY | 1 |
| 110 | MSK-0672-03-00-00-0 | CONTROL PANEL ASSY 230V | 1 |
| 111 | SPPRO65-12 | HEX SOCKET HEAD CAP SCREW M6x30 | 2 |
| 112 | KLK-000048 | DOWEL PIN 5n6x18 | 1 |
| 113 | SPPRO350704 | CABLE GLAND WITH STRAIN RELIEF PG11 | 1 |
| 114 | PDK-0279-02-01-06-1 | STEEL WASHER | 1 |
| 115 | TLJ-000034 | SLIDE BUSHING 28x32x12 | 1 |
| 116** | WZK-0502-03-03-00-0 | MOTOR-L WIRE SET | 1 |
| – | SMR-000001 | GREASE | 0,055kg |
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* - before you order read the service manual
** - not shown in the drawing

| Cutter Type | Features | Diameter Available | Cut Depth Available | Applications |
|---|---|---|---|---|
| **Silver Series Metric**  | • M2AL High speed steel<br>• Universal shank<br>• Multi-cut geometry<br>• Step hardened | • 12 to 65mm Metric | • 25mm & 50mm | • General purpose |
| **Silver Series Imperial**  | • M2SL High speed steel<br>• Multi-cut geometry<br>• Step hardened | • 7/16" to 2-1/4" Imperial | • 1"& 2" | • General purpose |
| **Gold Series Metric**  | • M2AL High speed steel<br>• Titanium nitride coated<br>• Universal shank<br>• Multi-cut geometry<br>• Step hardened | • 12 to 60mm Metric | • 25mm, 50mm & 75mm | • General purpose |
| **Pro-Cut**  | • ASP Powder steel<br>• Multi-cut geometry<br>• Incredible performance | • 12 to 22mm Metric | • 25mm & 50mm | • Rail line<br>• Hard materials<br>• Stainless steel<br>• Wear plate |
| **Maxi-Cut**  | • Tungsten carbide tipped<br>• Increased resistance to breakage<br>• Multi-cut geometry | • 12 to 200mm Metric<br>• 5/8" to 2-1/2" Imperial | • 35mm, 50mm, 75mm, 100mm, 150mm & 200mm | • Large diameters<br>• Stainless steel<br>• Hard materials<br>• Wear plate |
| **Maxi-Rail**  | • Tungsten carbide tipped<br>• Increased resistance to breakage<br>• Multi-cut geometry | • 18 to 35mm Metric | • 25mm | • Rail line<br>• Hard materials<br>• Wear plate |

| Countersink Type | Size | Angle |
|---|---|---|
| **Cross Hole Countersinks**  | • 2 - 5mm to 20 - 25mm | • 90° |
| **Three Flute Countersinks**  | • 3 - 6.4mm to 3 - 40mm | • 90° |

| Twist Drill Type | Features | Diameter Available | Cut Depth Available |
|---|---|---|---|
| **Weldon Shank Twist Drills Single Piece Type**  | • 3/4" Weldon Shank | • 6mm to 18mm Metric<br>• 1/4" to 1/2" imperial | • 30mm |
| **Weldon Shank Twist Drills 2-Piece Type**  | • 2-Piece kit including flatted shank drill and 3/4" Weldon shank twist drill adaptors | • 8mm to 12mm | |