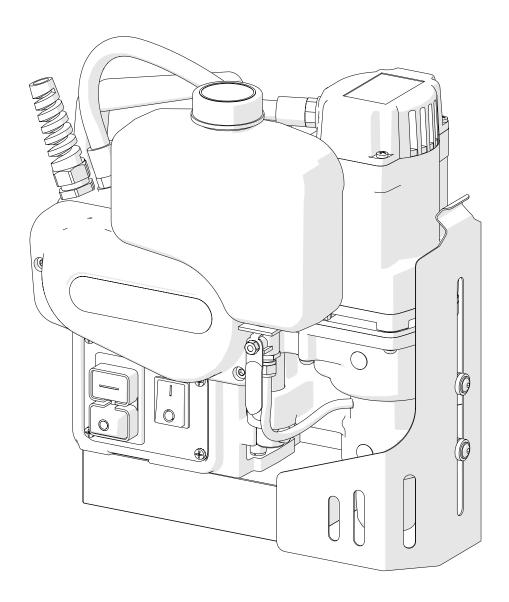


The tools of innovation.

# **OPERATOR'S MANUAL**

# **D1 AUTO**

# DRILLING MACHINE WITH ELECTROMAGNETIC BASE



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#### 1. GENERAL INFORMATION

#### 1.1. Application

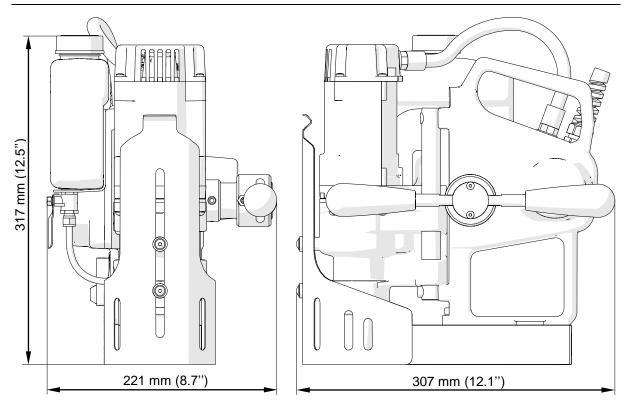
The D1 AUTO is a drilling machine with electromagnetic base designed to drill holes with diameters of 12–36 mm (0.47–1.42") to the maximum depth of 51 mm (2") through the use of annular cutters.

The electromagnetic base allows the drilling machine to be fixed to ferromagnetic surfaces with a force that ensures user safety and proper machine operation. A safety strap protects the machine from dropping in case of a power loss.

#### 1.2. Technical data

Valta as	1~ 110–120 V, 50–60 Hz		
Voltage	1~ 220–240 V, 50–60 Hz		
Total power	1000 W		
Motor power	920 W		
Cutter holder	19 mm Weldon (0.75")		
Maximum drilling diameter	36 mm (1.42")		
Maximum drilling depth	51 mm (2")		
Electromagnetic base holding force (surface with the thickness of 22 mm and roughness $R_a = 1.25$ )	9 000 N		
Electromagnetic base dimensions	80 mm × 160 mm × 38 mm 3.1" × 6.3" × 1.5"		
Slider stroke	70 mm (2.8")		
Rotational speed under load	350 rpm		
Rotational speed without load	580 rpm		
Minimum workpiece thickness	6 mm (0.23")		
Protection class	I		
Noise level	over 85 dB		
Vibration level	under 2.5 m/s $^2$ ( $\leq 8.2$ ft/s $^2$ )		
Required ambient temperature	0-40°C (32-104°F)		
Weight	13.5 kg (30 lbs)		





### 1.3. Design

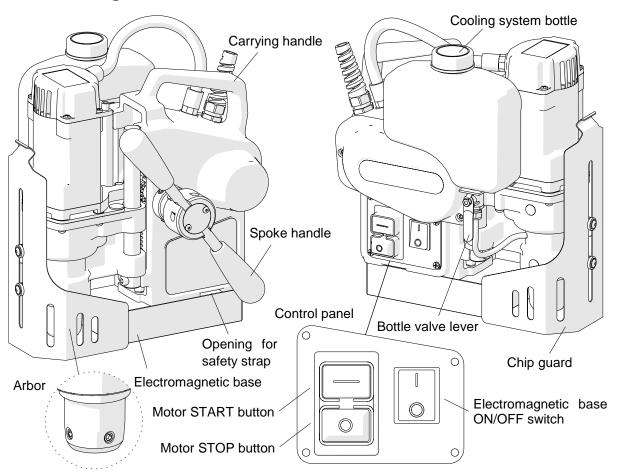


Fig. 1. View of the D1 AUTO

D1 AUTO Operator's Manual



# 1.4. Equipment included

The D1 AUTO is supplied in a metal box including the following elements.

Drilling machine	1 unit
Metal box	1 unit
Spoke handle	2 units
Cooling system bottle	1 unit
Chip guard	1 unit
Safety strap	1 unit
4 mm hex wrench	1 unit
Operator's Manual	1 unit



#### 2. SAFETY PRECAUTIONS

- 1. Before beginning, read this Operator's Manual and complete proper occupational safety and health training.
- 2. The machine must be used only in applications specified in this Operator's Manual.
- 3. The machine must be complete and all parts must be genuine and fully operational.
- 4. The specifications of the power source must conform to those specified on the rating plate.
- 5. The machine must be plugged into a properly grounded power source. The power source must be protected with a 16 A fuse for 230 V or a 32 A fuse for 115 V. When used on building sites, supply the machine through an isolation transformer made with class II protection only.
- 6. Never carry the machine by the power cord and never pull the cord because this may damage it and result in electric shock.
- 7. Transport and position the machine using the carrying handle and only when the magnet switch is set to the position 'O'.
- 8. Untrained bystanders must not be present near the machine.
- 9. Before beginning, check the condition of the machine and the power source, including the power cord, plug, control panel components, and cutters.
- 10. Keep the machine dry. Exposure to rain, snow, or frost is prohibited.
- 11. Never stay below the machine placed at heights.
- 12. Keep the work area well lit, clean, and free of obstacles.
- 13. Install the annular cutter securely using set screws. Remove adjusting keys and wrenches from the work area before connecting the machine to the power source.
- 14. Never use cutters that are dull or damaged.
- 15. Install and remove cutters using protective gloves and only when the machine is unplugged from the power source.
- 16. Never use annular cutters without the pilot pin except when drilling incomplete through holes.
- 17. Install only annular cutters with the maximum drilling diameter of 36 mm (1.42") and the maximum drilling depth of 55 mm (2.17").
- 18. Never use machine near flammable liquids or gases, or in explosive environments.
- 19. Using the machine on surfaces that are rusty, covered with a thick paint layer, uneven, or not rigid is prohibited.



- 20. Use the safety strap in all operating positions. The strap must be tight and fastened to a securely fixed element either through the opening in the machine body or by catching the strap on the carrying handle. Never insert the strap into the buckle from the front.
- 21. Before every use, inspect the machine to ensure it is not damaged. Check whether any part is cracked or improperly fitted. Make sure to maintain proper conditions that may affect the operation of the machine.
- 22. Always use eye and hearing protection and protective clothing during operation.

  Do not wear loose clothing.
- 23. Proceed with caution when drilling plate with a thickness less than 10 mm (0.4") because the adhesion force depends on material thickness and is significantly lower for thin plate.
- 24. The entire surface of the electromagnetic base bottom must be in full contact with the workpiece. Before every positioning, wipe the workpiece with coarse-grained sandpaper.
- 25. Do not touch moving parts or chips formed during milling. Prevent objects from being caught in moving parts.
- 26. After every use, remove metal chips and excess coolant from the machine. Do not remove chips with bare hands.
- 27. Cover steel parts with a thin anti-corrosion coating to protect the machine from rust when not in use for any extended period.
- 28. Maintain the machine and install/remove parts and tools only with the machine unplugged from the power source.
- 29. Repair only in a service center appointed by the seller.
- 30. If the machine falls from any height, is wet, or has any other damage that could affect the technical state of the machine, stop the operation and immediately send the machine to the service center for inspection and repair.
- 31. Never leave the machine unattended during operation.
- 32. Remove from the worksite and store in a secure and dry location when not in use, previously removing the cutter and pilot pin from the arbor.



#### 3. STARTUP AND OPERATION



Adhere to all safety precautions.

#### 3.1. Installing and operating the annular cutter

Unplug the machine from the power source, and then set both spoke handles to the position 1 (Fig. 2) and rotate them to the right (2), to raise the motor. Insert the proper pilot pin into the annular cutter (3), and then wear protective gloves and place the cutter into the arbor (4) in such a way to align the flats 5 with the set screws 6. Finally, tighten both set screws with the 4 mm hex wrench. To remove the cutter, proceed in reverse order.

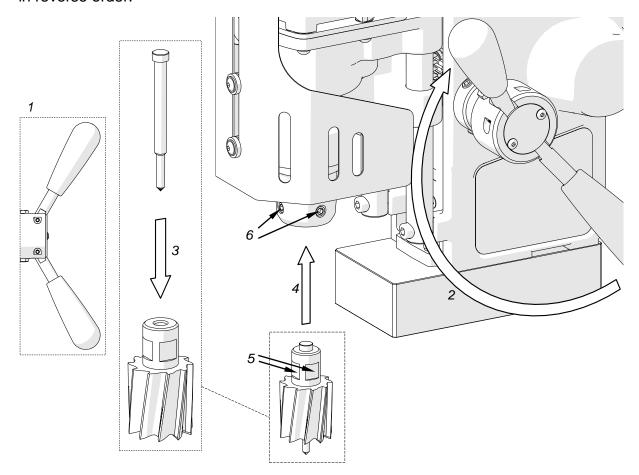


Fig. 2. Installing the annular cutter



Fig. 3 shows how annular cutters operate. As the cutter penetrates the workpiece, the pilot pin recesses into the arbor and tightens the spring. As a result, after the cutter goes through the entire thickness, the slug core is expelled from the cutter. The pilot pin also allows application of coolant to the inner surface of the annular cutter as it is depressed.

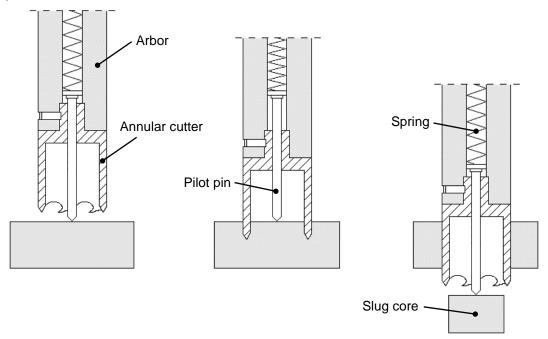


Fig. 3. Annular cutters operation

Annular cutters are designed to make only through holes shown in Fig. 4. When drilling incomplete through holes the pilot pin must not be used.

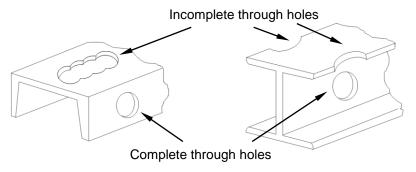


Fig. 4. Types of holes to make with annular cutters



#### 3.2. Installing and removing the cooling system bottle

Hang the cooling system bottle on the screws (1, Fig. 5), and attach the bottle hose to the coupling (2). Remove in reverse order.

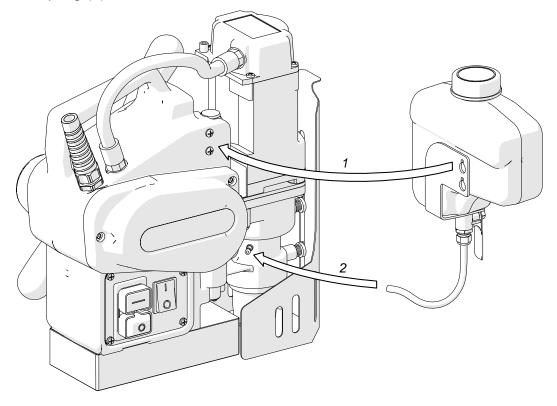


Fig. 5. Installing the cooling system bottle

#### 3.3. Control system of the electromagnetic base holding force

The D1 AUTO drilling machine incorporates a holding force control system to monitor the adhesion force of the electromagnetic base to the surface. The force value depends on several factors, such as type, thickness, flatness, and roughness of the surface, presence of paint, rust or other contaminants, supply voltage fluctuations, and the wear of the electromagnetic base bottom.

If the holding force falls below a safe operating value, the control system will not allow the machine to operate. Additionally, the system will prevent the startup of the motor if the machine is placed on a surface thinner than 5 mm (0.2") because such thickness does not provide sufficient holding force. In such a case, the adhesion force will be only about 25% of the force attained on a standard 22 mm (0.87") flat plate.

If the motor does not continue operation after the green MOTOR button is pushed and released, it means that the control circuit is operating properly and preventing further drilling because of too low adhesion force.



#### 3.4. Preparing

Before beginning, clean steel parts, especially the Weldon shank, from anti-corrosion coating used to preserve the machine for storage and transport.

Install the annular cutter into the arbor in the manner described before.

Position the machine on a flat ferromagnetic surface (some types of stainless and acid-proof steel do not conduct magnetic flux) with the thickness of at least 6 mm (0.23"). The workpiece must be clean, without rust or paint that decrease the holding force of the electromagnetic base.

Connect the drilling machine to the power source, and enable the holding force of the electromagnetic base by setting the MAGNET switch to the position 'I'.

Protect the machine using the safety strap to prevent possible injury if the machine loses magnetic adhesion in case of a power loss. To do this, either fasten the strap through the opening in the machine body (Fig. 6a, 6b) or catch the strap on the carrying handle when working in horizontal position (Fig. 6c). The strap must be tight, not twisted, and must be replaced every single time the machine hangs on the strap as a result of coming loose from steel. Never insert the strap into the buckle from the front (Fig. 6d).

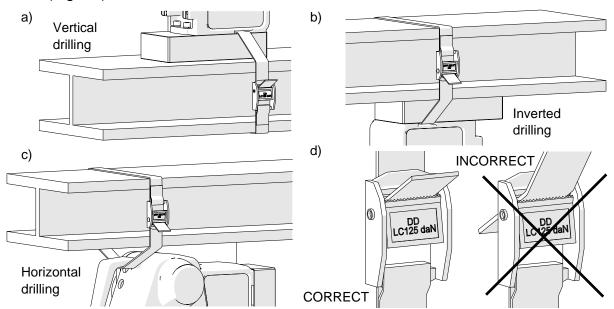


Fig. 6. Securing the drilling machine using the safety strap

When working in the position from Fig. 6a, install the cooling system bottle as described before, and fill it with a cutting fluid. Do not use pure water as the cutting fluid. However, using emulsions formed from mixing water and drilling oil is satisfactory. To check the operation of the cooling system, slightly loosen the bottle cap, open the



valve using the lever, and initially apply pressure on the pilot pin by rotating the spoke handles to the left. The fluid should fill the system and begin flowing from the inside of the cutter.



The cooling system works by means of gravitation, therefore use a cooling paste when working in horizontal or inverted positions.

Enter into manual feed mode by positioning the spoke handles as shown in Fig. 7a, and rotate them to the left to place the tip of the pilot pin above the drilling point.

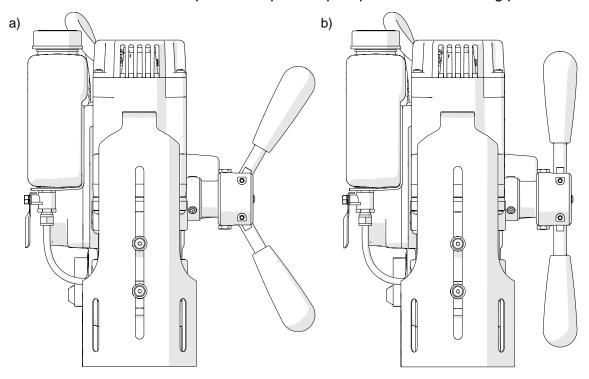


Fig. 7. Configuration of the spoke handles: manual feed (a), automatic feed (b)



#### 3.5. Drilling

Start the motor by pressing the green MOTOR button. Slowly rotate the spoke handles to the left to bring the cutter close to the workpiece. Then, gently begin drilling and enter into the automatic feed mode by setting the spoke handles to the position shown in Fig. 7b. The drilling machine will automatically detect the end of the drilling, causing the feed to stop after the hole is made; however, the motor will still be rotating.



When the cutter goes through the material, the slug core is expelled from the tool with a significant force.

After the hole is made, set the spoke handles to the position corresponding to the manual feed mode (Fig. 7a). Then, retract the cutter from the workpiece and stop the motor using the red MOTOR button. To move the machine to another drilling spot, first disable the electromagnetic base by setting the MAGNET switch to the position 'O'.

After the work is finished, unplug the machine from the power source, clean chips and excess coolant from the machine and the cutter, and then remove the machine from the worksite.

Tighten the cap of the cooling system bottle, close the valve, and press the pilot pin to expel the coolant remaining within the system. Before inserting the drilling machine into the toolbox, remove the cooling system bottle, and then remove the cutter and pilot pin from the arbor using protective gloves.



#### 3.6. Replacing the motor brushes

Check the condition of the carbon brushes every 100 operational hours. To do this, unplug the machine from the power source, and unscrew four fixing screws (1, Fig. 8) to remove the motor cover (2). Next, unscrew the pressing plate 3, and then remove the brush holder (4) and the brush (5). If the length of the brush is less than 5 mm (0.2"), replace both brushes with new ones. To install brushes, proceed in reverse order. After the replacement, run the motor without load for 20 minutes.

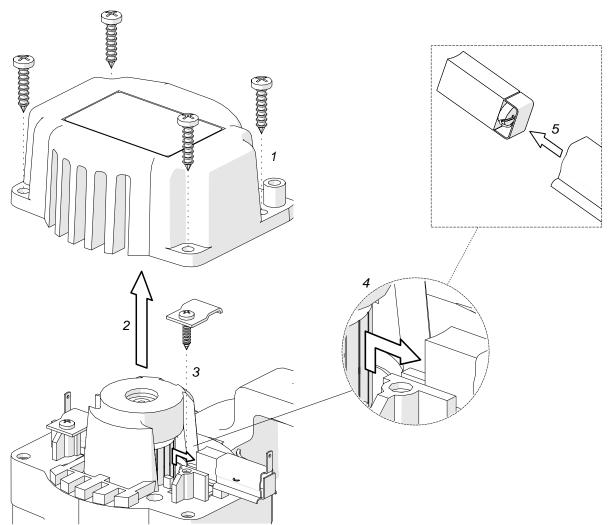
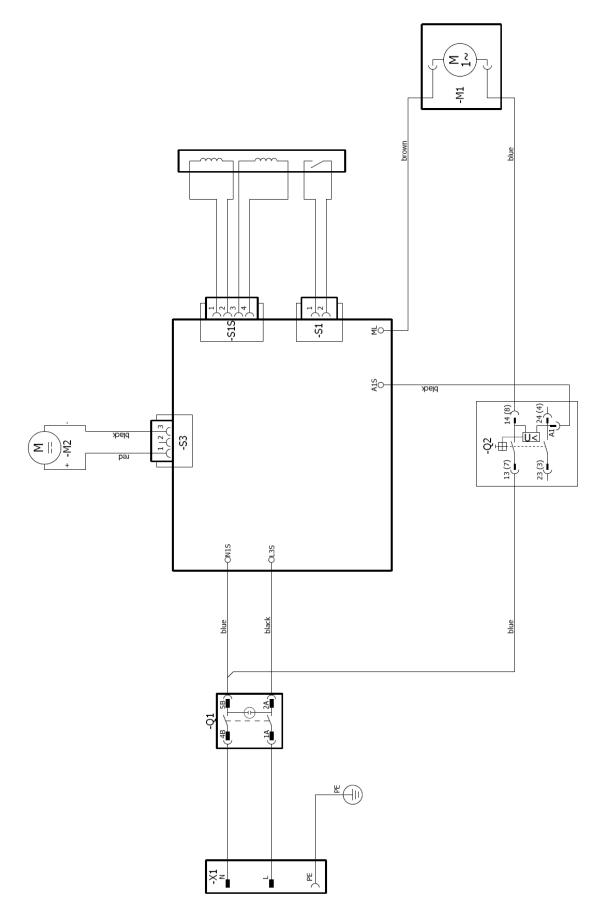


Fig. 8. Replacing the brushes



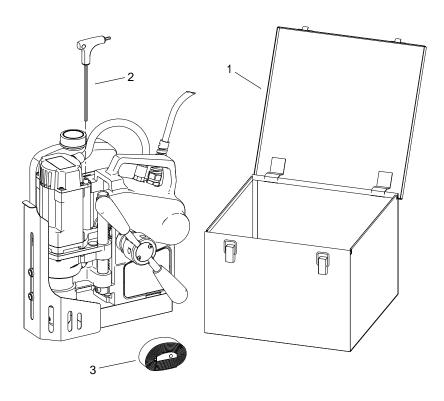
# 4. WIRING DIAGRAM



D1 AUTO Operator's Manual

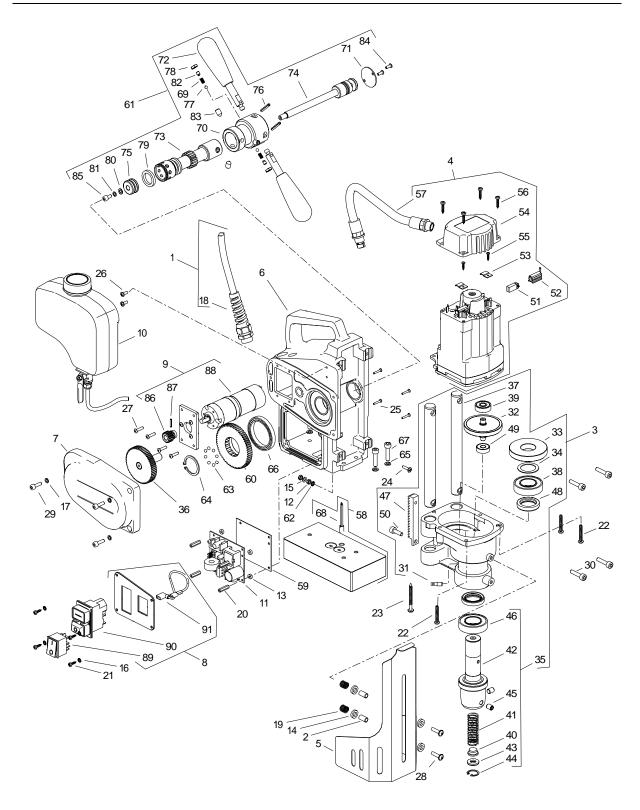


# 5. EXPLODED DRAWINGS AND PARTS LIST



ITEM	PART NUMBER	DESCRIPTION	Q-TY
1	SKR-0502-17-00-00-0	METAL BOX	1
2	KLC-000036	4 MM HEX WRENCH WITH HANDLE	1
3	PAS-000007	SAFETY STRAP 250	1







1   SZN-0212-10-02-00-2   POWER CORD 230V	ITEM	PART NUMBER	DESCRIPTION	Q-TY
1 SZN-0075-00-51-00-5 POWER CORD 120V 2 TLJ-0399-06-00-00-0 BOTTOM SLEEVE 3 RDK-0440-02-00-00-1 GEARBOX ASSY 4 SLN-0440-03-00-00-5 MOTOR ASSY 230V 5 SLN-0440-03-00-00-3 MOTOR ASSY 230V 1 SLN-0440-03-00-00-3 MOTOR ASSY 230V 1 SLN-0440-03-00-00-3 MOTOR ASSY 230V 1 SCN-0440-03-00-00-3 MOTOR ASSY 230V 1 SCN-0440-03-00-00-0 MOTOR ASSY 230V 1 SCN-0440-03-00-00-0 MOTOR ASSY 120V 1 SCN-0502-02-00-00-0 MOTOR SSY 120V 1 RPK-0502-02-00-00-0 BODY COVER 1 MSK-0502-03-00-00-1 BODY COVER 1 MSK-0502-03-00-00-1 CONTROL PANEL ASSY 220V 1 SZP-0502-04-00-00-0 MOTOREDUCER ASSY 1 MDL-0502-07-00-00-0 MOTOREDUCER ASSY 1 MDL-0502-07-00-00-1 ELECTRONIC CONTROLLER 220V 1 MR-000013 HEX NUT M4 2 DISTANCE WASHER 120V 1 PDK-000015 NYLON WASHER SR1940 4 PDK-000151 NYLON WASHER SR1940 4 PDK-000161 ROUND WASHER 8.3 1 DLW-000001 DISTANCE WASHER 8.3 1 DLW-000001 SPRING WASHER 5.1 1 DLW-000001 SPRING WASHER 5.1 1 DLW-000015 SPRING WASHER 5.1 2 DLW-000001 SETEMAL TOOTH LOCK WASHER 3.7 4 PDK-00003 PUSH SPRING 2 2 TLJ-000042 SLEEVE M3x20 HEAD SCREW 3.5x13 4 2 WKR-000302 SELF-TAPPING SCREW 5x30 3 WKR-000302 SELF-TAPPING SCREW 5x30 3 WKR-000303 HEX SOCKEOSSED PAN HEAD SCREW M4x16 1 2 WKR-000183 CROSS RECESSED PAN HEAD SCREW M4x16 1 2 WKR-000015 HEX SOCKET BUTTON HEAD SCREW M4x16 1 2 WKR-000015 HEX SOCKET BUTTON HEAD SCREW M4x16 1 2 WKR-000030 HEX SOCKET BUTTON HEAD SCREW M4x16 1 3 WKR-00034 HEX SOCKET BUTTON HEAD SCREW WMX16 1 3 WKR-00039 HEX SOCKET BUTTON HEAD SCREW WMX16 1 3 WKR-00039 HEX SOCKET BUTTON HEAD SCREW WMX16 1 3 WKR-00039 HEX SOCKET HEAD CAP SCREW WMX16 1 3 WKR-00039 HEX SOCKET HEAD CAP SCREW WMX16 1 3 WKR-00027-02-00-00 DIA SPRING 1 DIA SCREW M3x16 1 4 WKR-000090 HEAD SCREW M5x16 1 4 WKR-000090 HEAD SCREW HMX16 1 4 WKR-000090 HEAD SCREW M5x16 1 4 WKR-00009	1	SZN-0212-10-02-00-2	POWER CORD 230V	1
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4 SLN-0440-03-00-00-5 MOTOR ASSY 230V 1 4 SLN-0440-03-00-00-3 MOTOR ASSY 120V 1 5 OSL-0440-04-00-00-02 SWARF SHIELD ASSY 1 6 KRP-0502-01-01-00-0 MAIN BODY ASSY 1 7 PKR-0502-02-00-00-1 BODY COVER 1 8 MSK-0502-03-00-00-0 CONTROL PANEL ASSY 220V 1 8 MSK-0502-03-00-00-1 CONTROL PANEL ASSY 220V 1 9 ZSP-0502-04-00-00-0 MOTOREDUCER ASSY 210V 1 10 ZSP-0502-04-00-00-1 MOTOREDUCER ASSY 210V 1 11 MDL-0502-07-00-00-1 ELECTRONIC CONTROLLER 220V 1 12 NKR-000013 HEX NUT M4 2 13 PDK-000002 DISTANCE WASHER 81940 4 14 PDK-000016 ROUND WASHER SR1940 4 15 PDK-000016 ROUND WASHER SR1940 4 16 PDK-000161 EXTERNAL TOOTH LOCK WASHER 3.7 1 17 PDK-000016 ROUND WASHER 813 1 18 DLW-000007 CABLE GLAND WITH STRAIN RELIEF PG11 1 19 SPR-000030 PUSH SPRING 22 10 TLJ-000042 SLEEVE M3220 4 21 WKR-000415 CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.5x13 4 22 WKR-000302 SELF-TAPPING SCREW 5x30 3 23 WKR-000237 SELF-TAPPING SCREW 5x30 4 24 WKR-000113 CROSS RECESSED PAN HEAD SCREW M4x10 2 25 WKR-000183 CROSS RECESSED PAN HEAD SCREW M4x10 2 26 WKR-000183 CROSS RECESSED PAN HEAD SCREW M4x10 2 27 WKR-000093 HEX SOCKEY Bx50 1 1 28 WKR-000183 CROSS RECESSED PAN HEAD SCREW M4x10 2 29 SRB-000083 HEX SOCKET BUTTON HEAD SCREW M4x10 2 29 SRB-000018 CROSS RECESSED PAN HEAD SCREW M4x10 2 29 SRB-000018 CROSS RECESSED PAN HEAD SCREW M4x10 2 29 SRB-000018 CROSS RECESSED PAN HEAD SCREW M4x10 4 20 WKR-000193 HEX SOCKET HEAD CAP SCREW M6x25 4 21 WKR-000395 HEX SOCKET HEAD CAP SCREW M6x25 4 21 WKR-000091 HEX SOCKET HEAD CAP SCREW M6x25 4 21 WKR-000091 HEX SOCKET HEAD CAP SCREW M6x25 4 22 WKR-000093 HEX SOCKET HEAD CAP SCREW M6x25 4 23 WKR-000091 HEX SOCKET HEAD CAP SCREW M6x26 4 24 WKR-000190-00-00-0 IDIE GEAR 5 25 WKR-000090 HEX SOCKET HEAD CAP SCREW M6x25 4 26 WKR-000090 HEX SOCKET HEAD CAP SCREW M6x25 4 27 WKR-000090 HEX SOCKET HEAD CAP SCREW M6x25 4 28 WKR-000090 HEX SOCKET SERION GROWN HEAD SCREW M6x25 4 39 KR-000090 HEX SOCKET SERION GROWN HEAD SCREW M6x25 4 40 WKR-000090 HEX SOCKET SERION GROWN HEAD SCREW M6x25 4 40 WKR-000090 HEX SOCKET SERION GROWN HEAD SCREW M				
4 SLN-0440-03-00-00-3 MOTOR ASSY 120V 5 OSL-0440-04-00-00-2 SWARF SHIELD ASSY 1 CKRP-0502-01-01-00-0 MAIN BODY ASSY 1 TPKR-0502-01-01-00-0 MAIN BODY ASSY 1 TPKR-0502-02-00-00-0 DOTORD ASSY 1 TPKR-0502-03-00-00-0 CONTROL PANEL ASSY 220V 1 MSK-0502-03-00-00-0 CONTROL PANEL ASSY 220V 1 SSP-0502-04-00-00-1 CONTROL PANEL ASSY 120V 1 SSP-0502-04-00-00-1 CONTROL PANEL ASSY 120V 1 SSP-0502-04-00-00-1 CONTROL PANEL ASSY 120V 1 MDL-0502-07-00-00-1 CONTROL PANEL ASSY 120V 1 MDL-0502-07-00-00-1 ELECTRONIC CONTROLLER 220V 1 MDL-0502-07-00-00-1 ELECTRONIC CONTROLLER 120V 1 MDL-0502-07-00-00-1 ELECTRONIC CONTROLLER 120V 1 MDL-0502-07-00-00-1 ELECTRONIC CONTROLLER 120V 1 PDK-000013 HEX NUT M4 2 DDK-00015 HEX NUT M4 2 PDK-000161 NYLON WASHER R 1 PDK-000161 NYLON WASHER SR 1940 1 PDK-000161 EXTERNAL TOOTH LOCK WASHER 3.7 1 PDK-000045 SPRING WASHER 4.3 1 DW-000005 SPRING WASHER 5.1 2 WKR-000300 PUSH SPRING 2 TL-1-000042 SLEEVE M3x20 2 TL-1-000042 SLEEVE M3x20 2 WKR-000303 PUSH SPRING 2 ZWKR-00337 SELF-TAPPING SCREW 5x30 3 WKR-000307 SELF-TAPPING SCREW 5x30 3 WKR-000307 SELF-TAPPING SCREW 5x30 3 WKR-000308 HEX SOCKET BOUND HEAD SCREW M4x10 2 WKR-000113 CROSS RECESSED PAN HEAD SCREW M4x10 2 WKR-000113 CROSS RECESSED PAN HEAD SCREW M4x10 2 WKR-000188 COUNTERSUNK HEAD SCREW M4x10 2 WKR-000189 HEX SOCKET ROUND HEAD SCREW M4x10 2 WKR-000309 HEX SOCKET HEAD CAP SCREW WHA12 4 WKR-000309 HEX SOCKET BELD CAP SCREW WHA16 4 PRS-000009 HUTCH READ SCREW WHA17 4 PRS-000009 HUTCH READ SCREW WHA18 4 PRS-000009 HUTCH READ SCREW WHA19 4 WKR-000000 HUTCH READ SCREW HEAD CAP SCREW WHA19 4 WKR-000000 HUTCH RE				
5         OSL-0440-04-00-00-2         SWARF SHIELD ASSY         1           6         KRP-0502-01-01-00-0         MAIN BODY ASSY         1           7         PKR-0502-02-00-00-0         BODY COVER         1           8         MSK-0502-03-00-00-1         CONTROL PANEL ASSY 220V         1           8         MSK-0502-03-00-00-1         CONTROL PANEL ASSY 220V         1           9         ZSP-0502-04-00-00-0         MOTOREDUCER ASSY         1           10         ZSP-0502-04-00-00-0         MOTOREDUCER ASSY         1           11         MDL-0502-07-00-00-0         ELECTRONIC CONTROLLER 220V         1           12         NKR-000013         HEX NUT M4         2           13         PDK-000002         DISTANCE WASHER         4           14         PDK-0000161         NYLON WASHER SR1940         4           15         PDK-000161         EXTERNAL TOOTH LOCK WASHER 3.7         4           16         PDK-000161         EXTERNAL TOOTH LOCK WASHER 3.7         4           17         PDK-000045         SPRING WASHER 5.1         3           18         DLW-000007         CABLE GLAND WITH STRAIN RELIEF PG11         1           19         SPR-000030         PUSH SPRING         2	-			
6         KRP-0502-01-01-00-0         MAIN BODY ASSY         1           7         PKR-0502-03-00-00-1         BODY COVER         1           8         MSK-0502-03-00-00-0         CONTROL PANEL ASSY 220V         1           8         MSK-0502-03-00-00-1         CONTROL PANEL ASSY 120V         1           9         ZSP-0502-04-00-00-0         MOTOREDUCER ASSY         1           10         ZSP-0502-04-00-00-1         COLANT BOTTLE ASSY         1           11         MDL-0502-07-00-00-1         ELECTRONIC CONTROLLER 220V         1           11         MDL-0502-07-00-00-1         ELECTRONIC CONTROLLER 120V         1           12         NIK-000013         HEX NUT M4         2           13         PDK-000016         HEX NUT M4         2           14         PDK-000151         NYLON WASHER SR1940         4           15         PDK-000161         EXTERNAL TOOTH LOCK WASHER 3.7         4           16         PDK-000161         EXTERNAL TOOTH LOCK WASHER 3.7         4           17         PDK-000045         SPRING WASHER 5.1         3           18         DLW-000007         CABLE GLAND WITH STRAIN RELIEF PG11         1           19         SPR-000030         PUSH SPRING         2				
7         PKR-0502-02-00-01         BODY COVER         1           8         MSK-0502-03-00-00-0         CONTROL PANEL ASSY 220V         1           9         ZSP-0502-04-00-00-1         CONTROL PANEL ASSY 120V         1           10         ZSP-0502-04-00-00-0         MOTOREDUCER ASSY         1           11         MDL-0502-07-00-00-1         ELECTRONIC CONTROLLER 220V         1           11         MDL-0502-07-00-00-1         ELECTRONIC CONTROLLER 220V         1           12         NKR-000013         HEX NUT M4         2           13         PDK-000013         HEX NUT M4         2           14         PDK-000015         NYLON WASHER SR1940         4           15         PDK-000016         ROUND WASHER 4.3         1           16         PDK-000016         ROUND WASHER 5.1         3           18         DLW-000007         CABLE GLAND WITH STRAIN RELIEF PG11         1           19         SPR-000030         PUSH SPRING         2           21         WKR-000415         CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.5x13         4           22         WKR-000302         SELF-TAPPING SCREW 5x30         3           23         WKR-000332         SELF-TAPPING SCREW 5x30         1				
8 MSK-0502-03-00-00-0 CONTROL PANEL ASSY 220V 1 8 MSK-0502-03-00-00-1 CONTROL PANEL ASSY 120V 1 9 ZSP-0502-04-00-00-0 MOTOREDUCER ASSY 120V 1 10 ZSP-0502-06-00-00-1 COOLANT BOTTLE ASSY 1 11 MDL-0502-07-00-00-0 ELECTRONIC CONTROLLER 220V 1 11 MDL-0502-07-00-00-1 ELECTRONIC CONTROLLER 120V 1 12 NKR-000013 HEX NUT M4 2 13 PDK-000002 DISTANCE WASHER 4 14 PDK-000151 NYLON WASHER SR1940 4 15 PDK-000161 EXTERNAL TOOTH LOCK WASHER 3.7 4 16 PDK-000161 EXTERNAL TOOTH LOCK WASHER 3.7 4 17 PDK-000016 ROUND WASHER 8.1 3 18 DLW-000007 CABLE GLAND WITH STRAIN RELIEF PG11 1 19 SPR-000030 PUSH SPRING 2 20 TLJ-000042 SLEEVE M3x20 4 21 WKR-000415 CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.5x13 4 22 WKR-000302 SELF-TAPPING SCREW 5x30 3 23 WKR-000237 SELF-TAPPING SCREW 5x30 3 24 WKR-000131 CROSS RECESSED PAN HEAD SELF-TAPPING SCREW M4x16 1 25 WKR-000113 CROSS RECESSED DAN LEAD SCREW M4x10 2 26 WKR-000130 HEX SCREW 5x50 1 27 WKR-000183 CROSS RECESSED DAN HEAD SCREW M4x10 2 28 WKR-000183 CROSS RECESSED PAN HEAD SCREW M4x10 2 29 WKR-000183 CROSS RECESSED PAN HEAD SCREW M4x10 2 29 SRB-000083 HEX SOCKET BUTTON HEAD SCREW M4x10 2 29 SRB-000083 HEX SOCKET BUTTON HEAD SCREW M4x10 4 26 WKR-000395 HEX SOCKET BUTTON HEAD SCREW M5x16 3 30 SRB-000115 HEX SOCKET HEAD CAP SCREW WITH FLANGE M5x20 1 31 KNC-0234-00-10-00-0 IDLE GEAR 52 1 32 WLK-0271-02-05-00-1 GEAR 52 1 33 KOL-0271-02-05-00-1 GEAR 52 1 34 PRS-0271-02-05-00-1 GEAR 52 1 35 WLK-0272-02-00-0 SPINDLE ASSY 1 36 WLK-0272-02-00-0 SPINDLE ASSY 1 37 PRT-0440-02-02-00-1 PILUNGER 1 38 LOZ-000007 BALL BEARING 25x47x12 1 39 LOZ-000007 BALL BEARING 25x47x12 1 39 LOZ-000007 BALL BEARING 9x26x8 1 30 SRB-00009 INTERNAL RETAINING RING 19W 1 31 WSR-000099 INTERNAL RETAINING RING 19W 1 32 WLK-000099 HEX SOCKET SET SCREW WITH FLAT POINT M8x10 2 34 KR-000099 INTERNAL RETAINING RING 19W 1 35 WKR-000099 HEX SOCKET SET SCREW WITH FLAT POINT M8x10 2 36 LOZ-000048 BALL BEARING 25x47x12 1 37 LOZ-000094 BALL BEARING 25x47x12 1 38 LOZ-000094 BALL BEARING 25x47x12 1				
8         MSK-0502-03-00-00-1         CONTROL PANEL ASSY 120V         1           9         ZSP-0502-04-00-00-0         MOTOREDUCER ASSY         1           10         ZSP-0502-04-00-00-0         MOTOREDUCER ASSY         1           11         MDL-0502-07-00-00-0         ELECTRONIC CONTROLLER 220V         1           11         MDL-0502-07-00-00-1         ELECTRONIC CONTROLLER 120V         1           12         NKR-000013         HEX NUT M4         2           14         PDK-000002         DISTANCE WASHER         4           15         PDK-000161         NYLON WASHER SR1940         4           16         PDK-000161         EXTERNAL TOOTH LOCK WASHER 3.7         4           17         PDK-000161         EXTERNAL TOOTH LOCK WASHER 3.7         4           18         DLW-000007         CABLE GLAND WITH STRAIN RELIEF PG11         1           19         SPR-000030         PUSH SPRING         2           20         TLJ-000042         SLEEVE M3x20         4           21         WKR-000415         CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.30         3           22         WKR-000237         SELF-TAPPING SCREW 5x50         1           23         WKR-000138         CROSS RECESSED PAN HEAD SCREW M4x				
9 ZSP-0502-04-00-00-0 MOTOREDUCER ASSY 1 10 ZSP-0502-06-00-00-1 COOLANT BOTTLE ASSY 1 11 MDL-0502-07-00-00-0 ELECTRONIC CONTROLLER 220V 1 11 MDL-0502-07-00-00-1 ELECTRONIC CONTROLLER 120V 1 12 NKR-000013 HEX NUT M4 2 13 PDK-000002 DISTANCE WASHER 4 14 PDK-000161 NYLON WASHER SR1940 4 15 PDK-000161 ROUND WASHER \$4.3 1 16 PDK-000161 EXTERNAL TOOTH LOCK WASHER 3.7 4 17 PDK-000045 SPRING WASHER 5.1 3 18 DLW-000007 CABLE GLAND WITH STRAIN RELIEF PG11 1 19 SPR-000030 PUSH SPRING 2 20 TLJ-000042 SLEEVE M3x20 2 21 WKR-000415 CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.5x13 4 22 WKR-000302 SELF-TAPPING SCREW 5x30 3 23 WKR-000237 SELF-TAPPING SCREW 5x30 3 24 WKR-000158 COUNTERSUNK HEAD SCREW M3x16 4 25 WKR-000183 CROSS RECESSED PAN HEAD SCREW M4x10 2 26 WKR-000183 CROSS RECESSED PAN HEAD SCREW M4x10 2 27 WKR-000093 HEX SOCKET BUTTON HEAD SCREW M4x10 2 28 WKR-000093 HEX SOCKET BUTTON HEAD SCREW M4x10 2 29 SRB-000083 HEX SOCKET BUTTON HEAD SCREW M5x20 4 29 SRB-000083 HEX SOCKET BUTTON HEAD SCREW M5x16 3 30 SRB-000115 HEX SOCKET HEAD CAP SCREW WITH FLANGE M5x20 4 31 KNC-0234-00-10-00-0 GLANT COUPLING 1 32 WLK-0271-02-03-00-1 PINION ASSY 1 33 KOL-0271-02-03-00-1 GEAR 52 1 34 PRS-0271-02-03-00-1 GEAR 52 1 35 WKR-000072 BALL BEARING 25x47x12 1 36 LOZ-000072 BALL BEARING 25x47x12 1 37 PRT-0440-02-02-00-1 SPINDLE BODY 1 38 WKR-000098 HEX SOCKET SET SCREW WITH FLAT POINT M8x10 2 39 KR-000097 BALL BEARING 25x47x12 1 40 WKP-00072-02-00-0 SPINDLE BODY 1 41 SPR-0271-02-02-01-0 SPINDLE BODY 1 42 WKR-000098 HEX SOCKET SET SCREW WITH FLAT POINT M8x10 2 44 WKR-000099 HEX SOCKET SET SCREW WITH FLAT POINT M8x10 2 45 WKR-000099 HEX SOCKET SET SCREW WITH FLAT POINT M8x10 2 46 KRP-0271-02-02-01-0 SPINDLE BODY 1 43 USZ-0279-02-01-0 SPINDLE BODY 1 44 WKR-000058 BALL BEARING 25x47x12 1 45 WKR-000098 BALL BEARING 25x47x12 1 46 WKR-000098 BALL BEARING 25x47x12 1 47 SPR-0271-02-02-01-0 SPINDLE BODY 1 48 WKR-000098 BALL BEARING 25x47x12 1 49 WKR-000098 BALL BEARING 25x47x12 1 40 WKP-000098 BALL BEARING 25x47x12 1 41 SPC-0271-02-02-01-0 SPINDLE BODY				
10				
111         MDL-0502-07-00-00-0         ELECTRONIC CONTROLLER 220V         1           111         MDL-0502-07-00-00-1         ELECTRONIC CONTROLLER 120V         1           12         NKR-000013         HEX NUT M4         2           13         PDK-000002         DISTANCE WASHER         4           14         PDK-0000151         NYLON WASHER SR1940         4           15         PDK-000016         ROUND WASHER 4.3         1           16         PDK-000016         ROUND WASHER 5.1         3           17         PDK-000045         SPRING WASHER 5.1         3           18         DLW-000007         CABLE GLAND WITH STRAIN RELIEF PG11         1           19         SPR-000030         PUSH SPRING         2           20         TLJ-000042         SLEEVE M3x20         4           21         WKR-000415         CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.50         3           22         WKR-000237         SELF-TAPPING SCREW 5x50         1           23         WKR-000237         SELF-TAPPING SCREW 5x50         1           24         WKR-000113         CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x16         4           25         WKR-000158         COUNTERSUNK HEAD SCREW M3x16         4 <td></td> <td></td> <td></td> <td></td>				
111         MDL-0502-07-00-00-1         ELECTRONIC CONTROLLER 120V         1           12         NKR-000013         HEX NUT M4         2           13         PDK-000002         DISTANCE WASHER         4           14         PDK-000151         NYLON WASHER SR1940         4           15         PDK-00016         ROUND WASHER 4.3         1           16         PDK-000161         EXTERNAL TOOTH LOCK WASHER 3.7         4           17         PDK-000045         SPRING WASHER 5.1         3           18         DLW-000007         CABLE GLAND WITH STRAIN RELIEF PG11         1           19         SPR-000030         PUSH SPRING         2           20         TLJ-000042         SLEEVE M3x20         4           21         WKR-000415         CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.5x13         4           22         WKR-000302         SELF-TAPPING SCREW 5x30         3           23         WKR-000113         CROSS RECESSED POAL COUNTERSUNK HEAD SCREW M3.13         4           24         WKR-000118         CROSS RECESSED PAN HEAD SCREW M4x10         1           25         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-000183         CROSS RECESSED PAN HEAD S				
12         NKR-000013         HEX NUT M4         2           13         PDK-000002         DISTANCE WASHER         4           14         PDK-0000151         NYLON WASHER SR1940         4           15         PDK-000016         ROUND WASHER 4.3         1           16         PDK-000161         EXTERNAL TOOTH LOCK WASHER 3.7         4           17         PDK-000045         SPRING WASHER 5.1         3           18         DLW-000007         CABLE GLAND WITH STRAIN RELIEF PG11         1           19         SPR-000030         PUSH SPRING         2           20         TLJ-000042         SLEEVE M3x20         4           21         WKR-000415         CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.5x13         4           22         WKR-000302         SELF-TAPPING SCREW 5x30         3           23         WKR-000237         SELF-TAPPING SCREW 5x50         1           24         WKR-000113         CROSS RECESSED PAN HEAD SCREW M3x16         4           25         WKR-000158         COUNTERSUNK HEAD SCREW M3x16         4           26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x12         4           27         WKR-0000395         HEX SOCKET BUTTON HEAD SCREW M5x16         3 </td <td></td> <td></td> <td></td> <td></td>				
13         PDK-000002         DISTANCE WASHER         4           14         PDK-000151         NYLON WASHER SR1940         4           15         PDK-000016         ROUND WASHER 4.3         1           16         PDK-000161         EXTERNAL TOOTH LOCK WASHER 3.7         4           17         PDK-000161         EXTERNAL TOOTH LOCK WASHER 3.7         4           17         PDK-000045         SPRING WASHER 5.1         3           18         DLW-000007         CABLE GLAND WITH STRAIN RELIEF PG11         1           19         SPR-0000300         PUSH SPRING         2           20         TLJ-000042         SLEEVE M3x20         4           21         WKR-000415         CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.50         3           22         WKR-000237         SELF-TAPPING SCREW 5x50         1           23         WKR-000113         CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x16         1           25         WKR-000158         COUNTERSUNK HEAD SCREW M3x16         4           26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-00039         HEX SOCKET BUTTON HEAD SCREW M4x12         4           28         WKR-000395         HEX SOCKET BUTT				
14         PDK-000151         NYLON WASHER SR1940         4           15         PDK-000016         ROUND WASHER 4.3         1           16         PDK-000161         EXTERNAL TOOTH LOCK WASHER 3.7         4           17         PDK-0000045         SPRING WASHER 5.1         3           18         DLW-000007         CABLE GLAND WITH STRAIN RELIEF PG11         1           19         SPR-000030         PUSH SPRING         2           20         TLJ-000042         SLEEVE M3x20         4           21         WKR-000415         CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.5x13         4           22         WKR-000302         SELF-TAPPING SCREW 5x30         3           23         WKR-000337         SELF-TAPPING SCREW 5x30         3           24         WKR-000113         CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x16         1           25         WKR-000113         CROSS RECESSED DAN HEAD SCREW M3x16         4           26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-00093         HEX SOCKET BUTTON HEAD SCREW M4x12         4           28         WKR-000395         HEX SOCKET BUTTON HEAD SCREW M5x16         3           30         SRB-000115				
15         PDK-000016         ROUND WASHER 4.3         1           16         PDK-000161         EXTERNAL TOOTH LOCK WASHER 3.7         4           17         PDK-000045         SPRING WASHER 5.1         3           18         DLW-000007         CABLE GLAND WITH STRAIN RELIEF PG11         1           19         SPR-000030         PUSH SPRING         2           20         TLJ-000042         SLEEVE M3x20         4           21         WKR-000415         CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 5x30         3           23         WKR-000302         SELF-TAPPING SCREW 5x30         3           24         WKR-000237         SELF-TAPPING SCREW 5x50         1           24         WKR-000113         CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x16         1           25         WKR-000158         COUNTERSUNK HEAD SCREW M3x16         4           26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x12         4           28         WKR-00093         HEX SOCKET BUTTON HEAD SCREW MMx16         3           30         SRB-000083         HEX SOCKET HEAD CAP SCREW M6x25         4           31         KNC-0234-00-10-00-0				
16         PDK-000161         EXTERNAL TOOTH LOCK WASHER 3.7         4           17         PDK-000045         SPRING WASHER 5.1         3           18         DLW-000007         CABLE GLAND WITH STRAIN RELIEF PG11         1           19         SPR-000030         PUSH SPRING         2           20         TLJ-000042         SLEEVE M3x20         4           21         WKR-000415         CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.5x13         4           22         WKR-000302         SELF-TAPPING SCREW 5x30         3           23         WKR-000032         SELF-TAPPING SCREW 5x50         1           24         WKR-000113         CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x16         1           25         WKR-000113         CROSS RECESSED PAN HEAD SCREW M3x16         4           26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-00093         HEX SOCKET BUTTON HEAD SCREW M4x12         4           28         WKR-000395         HEX SOCKET BUTTON HEAD SCREW M4x12         4           29         SRB-000015         HEX SOCKET HEAD CAP SCREW M6x25         4           31         KNC-0234-00-10-00-0         COOLANT COUPLING         1           32         WL				
17         PDK-000045         SPRING WASHER 5.1         3           18         DLW-000007         CABLE GLAND WITH STRAIN RELIEF PG11         1           19         SPR-000030         PUSH SPRING         2           20         TLJ-000042         SLEEVE M3x20         4           21         WKR-000415         CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.5x13         4           22         WKR-000302         SELF-TAPPING SCREW 5x30         3           23         WKR-000237         SELF-TAPPING SCREW 5x50         1           24         WKR-000113         CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x16         1           25         WKR-000183         CROSS RECESSED PAN HEAD SCREW M3x16         4           26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-00093         HEX SOCKET BUTTON HEAD SCREW W4x12         4           28         WKR-000395         HEX SOCKET BUTTON HEAD SCREW W1TH FLANGE M5x20         2           29         SRB-000083         HEX SOCKET HEAD CAP SCREW M6x25         4           31         KNC-0234-00-10-00-0         COOLANT COUPLING         1           32         WLK-0271-02-03-00-1         PINION ASSY         1           34* PRS-0271-02-05-0				
18         DLW-000007         CABLE GLAND WITH STRAIN RELIEF PG11         1           19         SPR-000030         PUSH SPRING         2           20         TLJ-000042         SLEEVE M3x20         4           21         WKR-000415         CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.5x13         4           22         WKR-000302         SELF-TAPPING SCREW 5x30         3           23         WKR-000237         SELF-TAPPING SCREW 5x50         1           24         WKR-000113         CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x16         1           25         WKR-000158         COUNTERSUNK HEAD SCREW M3x16         4           26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-000093         HEX SOCKET BUTTON HEAD SCREW M4x12         4           28         WKR-00093         HEX SOCKET BUTTON HEAD SCREW M4x12         4           28         WKR-00093         HEX SOCKET BUTTON HEAD SCREW M5x16         3           30         SRB-00083         HEX SOCKET HEAD CAP SCREW M6x25         4           31         KNC-0234-00-10-00-0         COOLANT COUPLING         1           32         WLK-050-00-0         DISTANCE RING         1           35*         WRZ-0271				
19         SPR-000030         PUSH SPRING         2           20         TLJ-000042         SLEEVE M3x20         4           21         WKR-000415         CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.5x13         4           22         WKR-000302         SELF-TAPPING SCREW 5x30         3           23         WKR-000237         SELF-TAPPING SCREW 5x50         1           24         WKR-000113         CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x16         1           25         WKR-000158         COUNTERSUNK HEAD SCREW M3x16         4           26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-000093         HEX SOCKET BUTTON HEAD SCREW M4x12         4           28         WKR-000395         HEX SOCKET ROUND HEAD SCREW M5x16         3           30         SRB-000083         HEX SOCKET HEAD CAP SCREW M6x25         4           31         KNC-0234-00-10-00-0         COOLANT COUPLING         1           32         WLK-0271-02-03-00-1         PINION ASSY         1           33*         KOL-0271-02-05-00-1         GEAR 52         1           34*         PRS-0271-02-06-00-0         DISTANCE RING         1           35*         WZ-0272-02-00-0         <				
20         TLJ-000042         SLEEVE M3x20         4           21         WKR-000415         CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.5x13         4           22         WKR-000302         SELF-TAPPING SCREW 5x30         3           23         WKR-000237         SELF-TAPPING SCREW 5x50         1           24         WKR-000113         CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x16         1           25         WKR-000158         COUNTERSUNK HEAD SCREW M3x16         4           26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-000093         HEX SOCKET BUTTON HEAD SCREW M4x12         4           28         WKR-000395         HEX SOCKET ROUND HEAD SCREW WITH FLANGE M5x20         2           29         SRB-000083         HEX SOCKET HEAD CAP SCREW M6x25         3           30         SRB-000115         HEX SOCKET HEAD CAP SCREW M6x25         4           31         KNC-0234-00-10-00-0         COOLANT COUPLING         1           32*         WLK-0271-02-03-00-1         PINION ASSY         1           33*         KOL-0271-02-05-00-1         GEAR 52         1           34*         PRS-0271-02-00-00-0         SPINDLE ASSY         1           36* <t< td=""><td>-</td><td></td><td></td><td></td></t<>	-			
21         WKR-000415         CROSS RECESSED PAN HEAD SELF-TAPPING SCREW 3.5x13         4           22         WKR-000302         SELF-TAPPING SCREW 5x30         3           23         WKR-000237         SELF-TAPPING SCREW 5x50         1           24         WKR-000113         CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x16         1           25         WKR-000158         COUNTERSUNK HEAD SCREW M3x16         4           26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-000093         HEX SOCKET BUTTON HEAD SCREW M4x12         4           28         WKR-000093         HEX SOCKET BUTTON HEAD SCREW WMx12         4           28         WKR-0000395         HEX SOCKET BUTTON HEAD SCREW WMx12         4           29         SRB-000083         HEX SOCKET HEAD CAP SCREW WMx16         3           30         SRB-000115         HEX SOCKET HEAD CAP SCREW M6x25         4           31         KNC-0234-00-10-00-0         COOLANT COUPLING         1           32         WLK-0271-02-03-00-1         GEAR 52         1           34*         PRS-0271-02-05-00-1         GEAR 52         1           35*         WRZ-0272-02-02-00-0         SPINDLE ASSY         1           36				
22         WKR-000302         SELF-TAPPING SCREW 5x30         3           23         WKR-000237         SELF-TAPPING SCREW 5x50         1           24         WKR-000113         CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x16         1           25         WKR-000188         COUNTERSUNK HEAD SCREW M3x16         4           26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-000093         HEX SOCKET BUTTON HEAD SCREW M4x12         4           28         WKR-000395         HEX SOCKET BUTTON HEAD SCREW WITH FLANGE M5x20         2           29         SRB-000083         HEX SOCKET ROUND HEAD SCREW WITH FLANGE M5x20         2           29         SRB-000015         HEX SOCKET HEAD CAP SCREW M6x25         4           31         KNC-0234-00-10-00-0         COOLANT COUPLING         1           32         WLK-0271-02-03-00-1         PINION ASSY         1           33*         KOL-0271-02-05-00-1         GEAR 52         1           34*         PRS-0271-02-06-00-0         DISTANCE RING         1           35*         WRZ-0272-02-02-00-0         SPINDLE ASSY         1           36         WLK-0502-10-00-00-0         IDLE GEAR         1           37         PRT-0				
23         WKR-000237         SELF-TAPPING SCREW 5x50         1           24         WKR-000113         CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x16         1           25         WKR-000158         COUNTERSUNK HEAD SCREW M3x16         4           26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-000093         HEX SOCKET BUTTON HEAD SCREW M4x12         4           28         WKR-000395         HEX SOCKET ROUND HEAD SCREW WITH FLANGE M5x20         2           29         SRB-000083         HEX SOCKET HEAD CAP SCREW M5x16         3           30         SRB-000115         HEX SOCKET HEAD CAP SCREW M6x25         4           31         KNC-0234-00-10-0-0         COOLANT COUPLING         1           32         WLK-0271-02-03-00-1         PINION ASSY         1           33*         KOL-0271-02-05-00-1         GEAR 52         1           34*         PRS-0271-02-05-00-1         GEAR 52         1           35*         WRZ-0272-02-02-00-0         SPINDLE ASSY         1           36         WLK-0502-10-00-00-0         IDLE GEAR         1           37         PRT-0440-02-02-00-1         GUIDE         2           38*         LOZ-000047         BALL BE				
24         WKR-000113         CROSS RECESSED OVAL COUNTERSUNK HEAD SCREW M4x16         1           25         WKR-000158         COUNTERSUNK HEAD SCREW M3x16         4           26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-000093         HEX SOCKET BUTTON HEAD SCREW M4x12         4           28         WKR-000395         HEX SOCKET ROUND HEAD SCREW WITH FLANGE M5x20         2           29         SRB-00083         HEX SOCKET HEAD CAP SCREW M5x16         3           30         SRB-000115         HEX SOCKET HEAD CAP SCREW M6x25         4           31         KNC-0234-00-10-00-0         COOLANT COUPLING         1           32         WLK-0271-02-03-00-1         PINION ASSY         1           33*         KOL-0271-02-03-00-1         GEAR 52         1           34*         PRS-0271-02-06-00-0         DISTANCE RING         1           35*         WRZ-0272-02-02-00-0         SPINDLE ASSY         1           36         WLK-0502-10-00-00-0         IDLE GEAR         1           37         PRT-0440-02-02-00-1         GUIDE         2           38*         LOZ-000047         BALL BEARING 25x47x12         1           40         WYP-0139-00-02-00-1				
25         WKR-000158         COUNTERSUNK HEAD SCREW M3x16         4           26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-000093         HEX SOCKET BUTTON HEAD SCREW M4x12         4           28         WKR-000395         HEX SOCKET ROUND HEAD SCREW WITH FLANGE M5x20         2           29         SRB-000083         HEX SOCKET HEAD CAP SCREW M5x16         3           30         SRB-000115         HEX SOCKET HEAD CAP SCREW M6x25         4           31         KNC-0234-00-10-00-0         COOLANT COUPLING         1           32         WLK-0271-02-03-00-1         PINION ASSY         1           33*         KOL-0271-02-05-00-1         GEAR 52         1           34*         PRS-0271-02-06-00-0         DISTANCE RING         1           35*         WRZ-0272-02-02-00-0         SPINDLE ASSY         1           36         WLK-0502-10-00-00-0         IDLE GEAR         1           37         PRT-0440-02-02-01         GUIDE         2           38*         LOZ-000047         BALL BEARING 25x47x12         1           40         WYP-0139-00-02-00-1         PLUNGER         1           41         SPR-0271-02-02-03-0         SPRING         1 </td <td></td> <td></td> <td></td> <td></td>				
26         WKR-000183         CROSS RECESSED PAN HEAD SCREW M4x10         2           27         WKR-00093         HEX SOCKET BUTTON HEAD SCREW M4x12         4           28         WKR-000395         HEX SOCKET ROUND HEAD SCREW WITH FLANGE M5x20         2           29         SRB-000083         HEX SOCKET HEAD CAP SCREW M5x16         3           30         SRB-000115         HEX SOCKET HEAD CAP SCREW M6x25         4           31         KNC-0234-00-10-00-0         COOLANT COUPLING         1           32         WLK-0271-02-03-00-1         PINION ASSY         1           33*         KOL-0271-02-05-00-1         GEAR 52         1           34*         PRS-0271-02-05-00-1         GEAR 52         1           35*         WRZ-0272-02-00-0         SPINDLE ASSY         1           36         WLK-0502-10-00-00-0         IDLE GEAR         1           37         PRT-0440-02-02-00-1         GUIDE         2           38*         LOZ-000047         BALL BEARING 25x47x12         1           40         WYP-0139-00-02-00-1         PLUNGER         1           41         SPR-0271-02-02-03-0         SPRING         1           42         KRP-0272-02-02-01-0         SPINDLE BODY         1				<b>-</b>
27         WKR-000093         HEX SOCKET BUTTON HEAD SCREW M4x12         4           28         WKR-000395         HEX SOCKET ROUND HEAD SCREW WITH FLANGE M5x20         2           29         SRB-000083         HEX SOCKET HEAD CAP SCREW M5x16         3           30         SRB-000115         HEX SOCKET HEAD CAP SCREW M6x25         4           31         KNC-0234-00-10-00-0         COOLANT COUPLING         1           32         WLK-0271-02-03-00-1         PINION ASSY         1           33*         KOL-0271-02-05-00-1         GEAR 52         1           34*         PRS-0271-02-06-00-0         DISTANCE RING         1           35*         WRZ-0272-02-02-00-0         SPINDLE ASSY         1           36         WLK-0502-10-00-00-0         IDLE GEAR         1           37         PRT-0440-02-02-00-1         GUIDE         2           38*         LOZ-000047         BALL BEARING 25x47x12         1           39         LOZ-000072         BALL BEARING 9x26x8         1           40         WYP-0139-00-02-00-1         PLUNGER         1           41         SPR-0271-02-02-03-0         SPRING         1           42         KRP-0272-02-02-01-0         SPINDLE BODY         1 <tr< td=""><td></td><td></td><td></td><td></td></tr<>				
28         WKR-000395         HEX SOCKET ROUND HEAD SCREW WITH FLANGE M5x20         2           29         SRB-000083         HEX SOCKET HEAD CAP SCREW M5x16         3           30         SRB-000115         HEX SOCKET HEAD CAP SCREW M6x25         4           31         KNC-0234-00-10-00-0         COOLANT COUPLING         1           32         WLK-0271-02-03-00-1         PINION ASSY         1           33*         KOL-0271-02-05-00-1         GEAR 52         1           34*         PRS-0271-02-06-00-0         DISTANCE RING         1           35*         WRZ-0272-02-02-00-0         SPINDLE ASSY         1           36         WLK-0502-10-00-00-0         IDLE GEAR         1           37         PRT-0440-02-02-00-1         GUIDE         2           38*         LOZ-000047         BALL BEARING 25x47x12         1           39         LOZ-000072         BALL BEARING 9x26x8         1           40         WYP-0139-00-02-00-1         PLUNGER         1           41         SPR-0271-02-02-03-0         SPRING         1           42         KRP-0272-02-02-01-0         SPINDLE BODY         1           43         USZ-0279-02-01-06-0         SEAL         1           44				
29       SRB-000083       HEX SOCKET HEAD CAP SCREW M5x16       3         30       SRB-000115       HEX SOCKET HEAD CAP SCREW M6x25       4         31       KNC-0234-00-10-00-0       COOLANT COUPLING       1         32       WLK-0271-02-03-00-1       PINION ASSY       1         33*       KOL-0271-02-05-00-1       GEAR 52       1         34*       PRS-0271-02-06-00-0       DISTANCE RING       1         35*       WRZ-0272-02-02-00-0       SPINDLE ASSY       1         36       WLK-0502-10-00-00-0       IDLE GEAR       1         37       PRT-0440-02-02-00-1       GUIDE       2         38*       LOZ-000047       BALL BEARING 25x47x12       1         39       LOZ-000072       BALL BEARING 9x26x8       1         40       WYP-0139-00-02-00-1       PLUNGER       1         41       SPR-0271-02-02-03-0       SPRING       1         42       KRP-0272-02-02-01-0       SPINDLE BODY       1         43       USZ-0279-02-01-06-0       SEAL       1         44       PRS-000009       INTERNAL RETAINING RING 19w       1         45       WKR-000059       HEX SOCKET SET SCREW WITH FLAT POINT M8x10       2         46* <td></td> <td></td> <td></td> <td></td>				
30       SRB-000115       HEX SOCKET HEAD CAP SCREW M6x25       4         31       KNC-0234-00-10-00-0       COOLANT COUPLING       1         32       WLK-0271-02-03-00-1       PINION ASSY       1         33*       KOL-0271-02-05-00-1       GEAR 52       1         34*       PRS-0271-02-06-00-0       DISTANCE RING       1         35*       WRZ-0272-02-02-00-0       SPINDLE ASSY       1         36       WLK-0502-10-00-00-0       IDLE GEAR       1         37       PRT-0440-02-02-00-1       GUIDE       2         38*       LOZ-000047       BALL BEARING 25x47x12       1         39       LOZ-000072       BALL BEARING 9x26x8       1         40       WYP-0139-00-02-00-1       PLUNGER       1         41       SPR-0271-02-02-03-0       SPRING       1         42       KRP-0272-02-02-01-0       SPINDLE BODY       1         43       USZ-0279-02-01-06-0       SEAL       1         44       PRS-000009       INTERNAL RETAINING RING 19w       1         45       WKR-000059       HEX SOCKET SET SCREW WITH FLAT POINT M8x10       2         46*       LOZ-000048       BALL BEARING 25x47x12       1				
31       KNC-0234-00-10-00-0       COOLANT COUPLING       1         32       WLK-0271-02-03-00-1       PINION ASSY       1         33*       KOL-0271-02-05-00-1       GEAR 52       1         34*       PRS-0271-02-06-00-0       DISTANCE RING       1         35*       WRZ-0272-02-02-00-0       SPINDLE ASSY       1         36       WLK-0502-10-00-00-0       IDLE GEAR       1         37       PRT-0440-02-02-00-1       GUIDE       2         38*       LOZ-000047       BALL BEARING 25x47x12       1         39       LOZ-000072       BALL BEARING 9x26x8       1         40       WYP-0139-00-02-00-1       PLUNGER       1         41       SPR-0271-02-02-03-0       SPRING       1         42       KRP-0272-02-02-01-0       SPINDLE BODY       1         43       USZ-0279-02-01-06-0       SEAL       1         44       PRS-000009       INTERNAL RETAINING RING 19w       1         45       WKR-000059       HEX SOCKET SET SCREW WITH FLAT POINT M8x10       2         46*       LOZ-000048       BALL BEARING 25x47x12       1	-			
32       WLK-0271-02-03-00-1       PINION ASSY       1         33*       KOL-0271-02-05-00-1       GEAR 52       1         34*       PRS-0271-02-06-00-0       DISTANCE RING       1         35*       WRZ-0272-02-02-00-0       SPINDLE ASSY       1         36       WLK-0502-10-00-00-0       IDLE GEAR       1         37       PRT-0440-02-02-00-1       GUIDE       2         38*       LOZ-000047       BALL BEARING 25x47x12       1         39       LOZ-000072       BALL BEARING 9x26x8       1         40       WYP-0139-00-02-00-1       PLUNGER       1         41       SPR-0271-02-02-03-0       SPRING       1         42       KRP-0272-02-02-01-0       SPINDLE BODY       1         43       USZ-0279-02-01-06-0       SEAL       1         44       PRS-000009       INTERNAL RETAINING RING 19w       1         45       WKR-000059       HEX SOCKET SET SCREW WITH FLAT POINT M8x10       2         46*       LOZ-000048       BALL BEARING 25x47x12       1				
33*       KOL-0271-02-05-00-1       GEAR 52       1         34*       PRS-0271-02-06-00-0       DISTANCE RING       1         35*       WRZ-0272-02-02-00-0       SPINDLE ASSY       1         36       WLK-0502-10-00-00-0       IDLE GEAR       1         37       PRT-0440-02-02-00-1       GUIDE       2         38*       LOZ-000047       BALL BEARING 25x47x12       1         39       LOZ-000072       BALL BEARING 9x26x8       1         40       WYP-0139-00-02-00-1       PLUNGER       1         41       SPR-0271-02-02-03-0       SPRING       1         42       KRP-0272-02-02-01-0       SPINDLE BODY       1         43       USZ-0279-02-01-06-0       SEAL       1         44       PRS-000009       INTERNAL RETAINING RING 19w       1         45       WKR-000059       HEX SOCKET SET SCREW WITH FLAT POINT M8x10       2         46*       LOZ-000048       BALL BEARING 25x47x12       1				<u> </u>
34*       PRS-0271-02-06-00-0       DISTANCE RING       1         35*       WRZ-0272-02-02-00-0       SPINDLE ASSY       1         36       WLK-0502-10-00-00-0       IDLE GEAR       1         37       PRT-0440-02-02-00-1       GUIDE       2         38*       LOZ-000047       BALL BEARING 25x47x12       1         39       LOZ-000072       BALL BEARING 9x26x8       1         40       WYP-0139-00-02-00-1       PLUNGER       1         41       SPR-0271-02-02-03-0       SPRING       1         42       KRP-0272-02-02-01-0       SPINDLE BODY       1         43       USZ-0279-02-01-06-0       SEAL       1         44       PRS-000009       INTERNAL RETAINING RING 19w       1         45       WKR-000059       HEX SOCKET SET SCREW WITH FLAT POINT M8x10       2         46*       LOZ-000048       BALL BEARING 25x47x12       1				-
35*       WRZ-0272-02-00-0       SPINDLE ASSY       1         36       WLK-0502-10-00-00-0       IDLE GEAR       1         37       PRT-0440-02-02-00-1       GUIDE       2         38*       LOZ-000047       BALL BEARING 25x47x12       1         39       LOZ-000072       BALL BEARING 9x26x8       1         40       WYP-0139-00-02-00-1       PLUNGER       1         41       SPR-0271-02-02-03-0       SPRING       1         42       KRP-0272-02-03-0       SPRING       1         42       KRP-0272-02-01-0       SPINDLE BODY       1         43       USZ-0279-02-01-06-0       SEAL       1         44       PRS-000009       INTERNAL RETAINING RING 19w       1         45       WKR-000059       HEX SOCKET SET SCREW WITH FLAT POINT M8x10       2         46*       LOZ-000048       BALL BEARING 25x47x12       1				
36       WLK-0502-10-00-00-00-00-00-00-00-00-00-00-00-00-				
37       PRT-0440-02-02-00-1       GUIDE       2         38*       LOZ-000047       BALL BEARING 25x47x12       1         39       LOZ-000072       BALL BEARING 9x26x8       1         40       WYP-0139-00-02-00-1       PLUNGER       1         41       SPR-0271-02-02-03-0       SPRING       1         42       KRP-0272-02-02-01-0       SPINDLE BODY       1         43       USZ-0279-02-01-06-0       SEAL       1         44       PRS-000009       INTERNAL RETAINING RING 19w       1         45       WKR-000059       HEX SOCKET SET SCREW WITH FLAT POINT M8x10       2         46*       LOZ-000048       BALL BEARING 25x47x12       1				
38*       LOZ-000047       BALL BEARING 25x47x12       1         39       LOZ-000072       BALL BEARING 9x26x8       1         40       WYP-0139-00-02-00-1       PLUNGER       1         41       SPR-0271-02-02-03-0       SPRING       1         42       KRP-0272-02-02-01-0       SPINDLE BODY       1         43       USZ-0279-02-01-06-0       SEAL       1         44       PRS-000009       INTERNAL RETAINING RING 19w       1         45       WKR-000059       HEX SOCKET SET SCREW WITH FLAT POINT M8x10       2         46*       LOZ-000048       BALL BEARING 25x47x12       1				-
39       LOZ-000072       BALL BEARING 9x26x8       1         40       WYP-0139-00-02-00-1       PLUNGER       1         41       SPR-0271-02-02-03-0       SPRING       1         42       KRP-0272-02-02-01-0       SPINDLE BODY       1         43       USZ-0279-02-01-06-0       SEAL       1         44       PRS-000009       INTERNAL RETAINING RING 19w       1         45       WKR-000059       HEX SOCKET SET SCREW WITH FLAT POINT M8x10       2         46*       LOZ-000048       BALL BEARING 25x47x12       1				
40       WYP-0139-00-02-00-1       PLUNGER       1         41       SPR-0271-02-02-03-0       SPRING       1         42       KRP-0272-02-01-0       SPINDLE BODY       1         43       USZ-0279-02-01-06-0       SEAL       1         44       PRS-000009       INTERNAL RETAINING RING 19w       1         45       WKR-000059       HEX SOCKET SET SCREW WITH FLAT POINT M8x10       2         46*       LOZ-000048       BALL BEARING 25x47x12       1				
41       SPR-0271-02-02-03-0       SPRING       1         42       KRP-0272-02-02-01-0       SPINDLE BODY       1         43       USZ-0279-02-01-06-0       SEAL       1         44       PRS-000009       INTERNAL RETAINING RING 19w       1         45       WKR-000059       HEX SOCKET SET SCREW WITH FLAT POINT M8x10       2         46*       LOZ-000048       BALL BEARING 25x47x12       1				
42       KRP-0272-02-02-01-0       SPINDLE BODY       1         43       USZ-0279-02-01-06-0       SEAL       1         44       PRS-000009       INTERNAL RETAINING RING 19w       1         45       WKR-000059       HEX SOCKET SET SCREW WITH FLAT POINT M8x10       2         46*       LOZ-000048       BALL BEARING 25x47x12       1				
43       USZ-0279-02-01-06-0       SEAL       1         44       PRS-000009       INTERNAL RETAINING RING 19w       1         45       WKR-000059       HEX SOCKET SET SCREW WITH FLAT POINT M8x10       2         46*       LOZ-000048       BALL BEARING 25x47x12       1				
44         PRS-000009         INTERNAL RETAINING RING 19w         1           45         WKR-000059         HEX SOCKET SET SCREW WITH FLAT POINT M8x10         2           46*         LOZ-000048         BALL BEARING 25x47x12         1				-
45         WKR-000059         HEX SOCKET SET SCREW WITH FLAT POINT M8x10         2           46*         LOZ-000048         BALL BEARING 25x47x12         1				
46* LOZ-000048 BALL BEARING 25x47x12 1				
	46"	LST-0271-02-01-02-1	GEAR RACK	1



ITEM	PART NUMBER	DESCRIPTION	Q-TY
48*	PRS-000070	SEAL 25x37x7	2
49	LOZ-000053	BALL BEARING 8x22x7	1
50	SRB-000111	HEX SOCKET HEAD CAP SCREW M6x18	1
51	SCZ-000008	MOTOR BRUSH 6x9x17	2
52	SCT-0271-03-06-00-0	BRUSH HOLDER	2
53	PLY-0271-03-07-00-0	BRUSH HOLDER PRESSURE PLATE	2
54	PKR-0440-03-02-00-1	MOTOR COVER	1
55	WKR-000326	CROSS RECESSED COUNTERSUNK HEAD SHEET METAL SCREW 2.9x13	2
56	WKR-000241	SELF-TAPPING SCREW 4x20	4
57	PWD-0440-03-01-00-0	MOTOR CORD	1
58	PDS-0440-06-00-00-0	ELECTROMAGNETIC BASE	1
59	PLY-0277-00-02-00-1	INSULATION PLATE	1
60	KOL-0502-01-02-00-0	GEAR z=60	1
61	ZSP-0502-05-00-00-0	LEVERS ASSY	1
62	PDK-000166	EXTERNAL TOOTH LOCK WASHER 4.3	1
63	KUL-000003	BEARING BALL 5	8
64	PRS-000021	EXTERNAL RETAINING RING 30z	1
65	PDK-000046	SPRING WASHER 6.1	3
66	LOZ-000080	BALL BEARING 45x58x7	1
67	SRB-000115	HEX SOCKET HEAD CAP SCREW M6x25	3
68	WZK-0242-04-00-00-0		1
69	SPR-0203-03-09-00-0	LATCH SPRING	2
70	KRP-0502-05-01-00-1	LEVER BODY	1
71	PKR-0502-05-02-00-0	COVER	1
72	DZW-0502-05-03-00-0	SPOKE HANDLE INCLUDING KNOB (ASSY)	2
73	WLK-0502-05-04-00-0	DRIVEN SHAFT	1
74	WLK-0502-05-05-00-1	SWITCHING SHAFT	1
75	TLJ-0502-05-06-00-0	CLUTCH SLEEVE	1
76	KLK-000015	SPRING DOWEL PIN 4x26	2
77	KUL-000003	BEARING BALL 5	2
78	NKR-000035	SHORT NUT M6	2
79	PRS-000259	SEAL	1
80	PDK-000017	ROUND WASHER 5.3	1
81	PDK-000045	SPRING WASHER 5.1	1
82	WKR-000019	HEX SOCKET SET SCREW WITH DOG POINT M5x6	2
83	WKR-000069	HEX SOCKET SET SCREW WITH CONE POINT M8x12	3
84	WKR-000092	HEX SOCKET BUTTON HEAD SCREW M4x10	2
85	SRB-000075	HEX SOCKET HEAD CAP SCREW M5x10	1
86	KOL-0502-04-02-00-0	GEAR z=16	1
87	KLK-000005	SPRING DOWEL PIN 3x14	1
88	SLN-000056	MOTOREDUCER 12V	1
89	PNK-000013	MAGNET SWITCH	1
90	WLC-000007	SWITCH START-STOP 230V	1
90	WLC-000005	SWITCH START-STOP 115V	1
91		PANEL PLATE WIRE	1
_	SMR-000001	GREASE	0.055 kg

<sup>\*</sup> before you order read the service manual



## 6. DECLARATION OF CONFORMITY

# EC Declaration of Conformity

We

PROMOTECH sp. z o.o. ul. Elewatorska 23/1 15-620 Bialystok Poland

declare with full responsibility that product:

## **D1 AUTO Drilling Machine with Electromagnetic Base**

which the declaration applies to is in accordance with the following standards:

- EN 60745-1
- EN 55014
- EN ISO 12100-1
- EN ISO 12100-2

and satisfies safety regulations of the guidelines: 2004/108/EC, 2006/95/EC, 2006/42/EC.

Bialystok, 6 September 2013

Marek Siergiej Chair



## 7. QUALITY CERTIFICATE

# Machine control card D1 AUTO Drilling Machine with Electromagnetic Base

Se	rial number		
Sp	indle radial runout		
Sli	der to base travel perpendicularity		
Sp	indle axis to base perpendicularity		
	rface with the minimum thickness of 22 mm and ro		
	Electric	test	
	Type of test	Result	Name of tester
	Test with sinusoidal voltage (voltage 1000 V, frequency 50 Hz)		Date
	Resistance of the protective circuit	Ω	Signature
	Quality control		
	Adjustments, i	nspections	
	Quality control		



# 8. WARRANTY CARD

WARRANTY CARD No
in the name of Manufacturer warrants the D1 AUTO Drilling Machine with Electromagnetic Base to be free of defects in material and workmanship under normal use for a period of 12 months from the date of sale.
This warranty does not cover cutters as well as damage or wear that arise from misuse, accident, tempering, or any other causes not related to defects in workmanship or material.
Date of production
Serial number
Date of sale
Signature of seller

1.06 / 14 April 2015

WE RESERVE THE RIGHT TO MAKE CHANGES IN THIS MANUAL WITHOUT NOTICE