PALMGREN®

ARBOGA

25" Gear Head Drill Press

9680250, 230V w/ foot reverse & power feed

9680251, 460V w/ foot reverse & power feed

Read carefully and follow all safety rules and operating instructions before first use of this product.

964848102-0725

TABLE OF CONTENTS

General Information and Safety ..... 2 - 3
Design and Function ..... 3 - 4
Installation and Set-up 4
Specifications 4
Handling, Feed and Drill Ejector ..... 5 - 6
Maintenance, Cleaning and Lubrication 7
Repair and Corrective Maintenance ..... 7 - 8
Electrical Schematics ..... 9 - 13
Parts ..... 14 - 25
Warranty 28

INTRODUCTION

Palmgren and Machinery Scandinavia / Arboga have entered into a joint venture to offer the Arboga gear head drilling machines throughout North America. Combining the strengths of both companies we can advance our resources of staff and technologies to offer our customers the very best drilling machines available today.

Arboga drill presses will continued to be manufactured in Sweden and supplied exclusively to Palmgren. Palmgren will provide all sales, technical support and service for Arboga as well as any other brand of Swedish gear head drilling machines.

Arboga gear head drilling machines are sold exclusively by Palmgren a C. H. Hanson Company brand. For parts, service or technical support please contact Palmgren at:

C. H. Hanson
2000 North Aurora Road
Naperville, Illinois 60563
(800) 827-3398
sales@chhanson.com

GENERAL

This manual is for models 9680250 and 9680251 drill presses. It has been prepared for those using the machine or who are responsible for its maintenance and service and should therefore be made readily available for all those concerned.

Read through the manual carefully before installing and starting up the machine. The machine is of simple design and robustly built, but we cannot guarantee perfect function if it is not correctly handled.

It is therefore necessary to make yourself thoroughly acquainted with its functions and to carry out practical tests on the various parts of the control system and the machine settings. Once these are mastered, the properties of the machine can be fully utilized and the component parts will give maximum service life.

Every machine is tested for accuracy and capacity at the factory. Experienced staff checks both the mechanical and electrical functions according to a standardized program, meaning that we can guarantee workmanship of the highest and most consistent quality.

By following our directions and your own good judgement, we are convinced that your new machine will give you every satisfaction. However, should any problems arise, please do not hesitate to contact our dealer or us.

CE-LABELLING AND DECLARATION OF CONFORMITY

An "EC Declaration of Conformity" accompanies machines delivered within the Euro- pean Union (CE-labelled machines).

The declaration of conformity is valid only if the chuck guard (see figure 2) is used.

SAFETY

SAFETY MESSAGES

Safety messages in this manual are accompanied by a safety alert symbol and a signal word. The safety alert symbol is used to alert the reader about a potential risk of personal injury or damage on the equipment.

SAFETY REGULATIONS

Used correctly, your machine is one of the best concerning design and safety. However, any machine which is used incorrectly can be a safety risk.

It is very important, that those who use the machine are informed how to handle it correctly. They should read and understand these instructions, as well as all signs on the machine. Neglecting to follow the safety regulations can cause an accident.

⚠ **WARNING:** Using the machine incorrectly can cause serious accidents. The machine has to be installed, used and maintained correctly.

All machines with rotating tools or details can cause accidents. It is therefore important that you as an operator are aware of those risks for any accident and that you avoid all possibilities for accidents.

⚠ **PROPOSITION 65 WARNING:** Some dust created by using power tools contain chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

Some examples of these chemicals are:

- Lead from lead-based paints
- Crystalline silica from bricks and cement and other masonry products.
- Arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals; work in a well ventilated area and work with approved safety equipment. Always wear **OSHA/NIOSH** approved, properly fitting face mask or respirator when using such tools.

Figure 1 - Warning symbols on the machine.

- Always use appropriate clothes and personal equipment, so that you cannot get caught by rotating tools. Avoid using protective gloves if possible. Use hairnet if necessary.
- Always use eye protection, if there is a risk for chips or splashes from the coolant. Follow local instructions if existing.
- Never use the machine if it lacks necessary protection.
- The chuck guard (figure 2a) must always be used. For safety reasons, the chuck guard is equipped with a micro switch.

SAFETY (CONTINUED)

Figure 2a - Chuck guard (for machines within the EU).
Figure 2b - Depth gauge (3).

- Depth gauge and Depth gauge rod (3) must never be removed from the machine.
- Keep clean around the machine to avoid stumbling against rotating tools.
- Make sure that the work piece is securely fastened at the table, see the examples in figure 3 and 4.

⚠ **WARNING**: Never use your hand to hold the work piece.

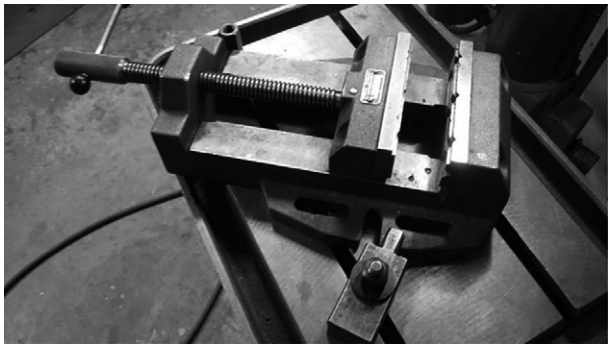


Figure 3 - Fastening the table vice on the table, example.

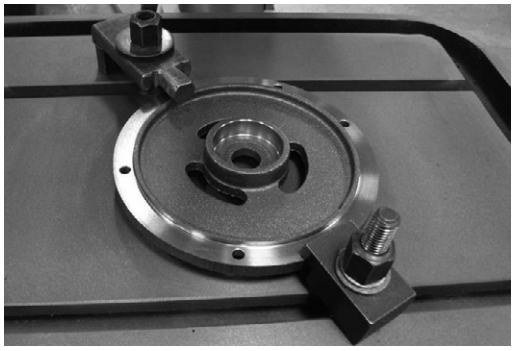


Figure 4 - Fastening the work piece on the table, example.

- Make sure that the switch is in position "0" when changing tools or when cleaning the machine. Never brush away chips while the machine is operating.
- Never stretch yourself over the machine when it is running.
- Always stop the machine when not in use.
- Use faultless tools and the correct speed and feed for the tool. Make sure that the tool is the correct one for your operation.
- Make sure that the drill head, table arm and table are thoroughly fastened before starting up the machine.

DESIGN AND FUNCTION

DRILL HEAD AUTOMATIC FEED

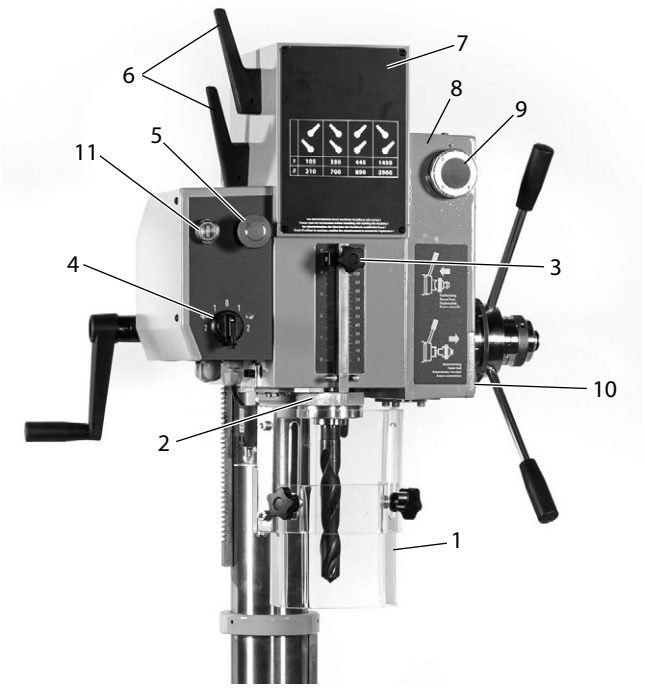


Figure 7 - Drill head.

1) Chuck guard
2) Spindle quill
3) Depth gauge rod
4) Switch/speed selector
5) Emergency stop push button
6) Gear lever (2 pieces.)
7) Gearbox
8) Power feed box
9) Knob for setting the feed speed
10) Oil level indicator
11) Start button

EMERGENCY STOP

See the location of the emergency stop push button (5) in figure 7. The emergency stop shall be used in case of emergency to stop the machine as fast as possible.

DESIGN AND FUNCTION (CONTINUED)

DRILL HEAD - ELECTROMAGNETIC FEED

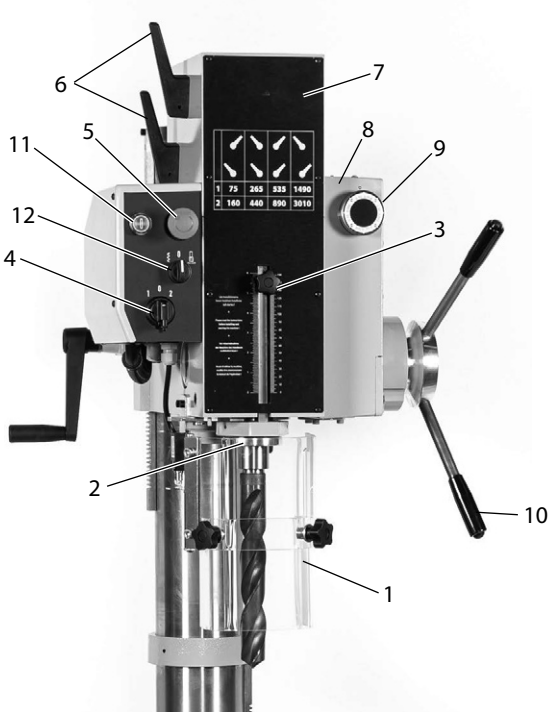


Figure 8 - Drill head.

1) Chuck guard
2) Spindle quill
3) Depth gauge rod
4) Switch/speed selector
5) Emergency stop push button
6) Gear lever (2 pieces)
7) Gearbox
8) Power feed box
9) Knob for setting the feed speed
10) Push button for manual switch on/switch off when feeding/threading (3 pieces)
11) Start button
12) Feeding/threading selector

EMERGENCY STOP

See the location of the emergency stop push button (5) in figure 8. The emergency stop shall be used in case of emergency to stop the machine as fast as possible.

INSTALLATION

SET-UP

Consider the following during set-up of the machine:

- The machine must be installed on a firm foundation. The base plate must be levelled with washers on the foundation bolts, to prevent harmful stresses when the nuts are tightened.
- Do not install the machine in a humid, dirty or badly illuminated environment.
- All bright parts of the machine are treated with rust prevention. By removing this, be careful not to use too strong cleaning compound. The paint might then get damaged.
- Make sure that the boring tool cone is well-cleaned.
- Be sure that the machine is equipped with all necessary protections to comply with the CE directives.
- For machines with automatic feed, the gear box must be filled up with oil, see "Oil Filling, Feed Gear Box" on page 6.

ELECTRIC INSTALLATION

NOTE: Electric installations have to be performed by a qualified electrician.

1. Make sure that the correct voltage is supplied to the machine.
2. Set up the electrical connections according to the attached circuit diagram.
3. Make sure that the drilling spindle has the correct rotation direction.

SPECIFICATIONS

	9680250	9680251
Swing	20"	20"
Column	3.94"	3.94"
Max drill size	1"	1"
Max tap size	5/8", 3/4"	5/8", 3/4"
Arbor	MT3	MT3
Chuck	3/4", JT4	3/4", JT4
Spindle travel	5"	5"
Max workpiece height	32.5"	32.5"
RPMs	130-260, 420-840, 535-1070, 1740-3480	130-260, 420-840, 535-1070, 1740-3480
Voltage	230V	460V
Amps	5	2.5
HP	1.5	1.5
kW	0.8-1.1 kW	0.8-1.1 kW
Phase	3	3
Table	19.70" x 15.75"	19.70" x 15.75"
T-slot dimensions	A: 5/16", B: 1/2", C: 1" D: 15/32	A: 5/16", B: 1/2", C: 1" D: 15/32
Table T-slot distance	3.94" center to center	3.94" center to center
Base	15.75" x 19.7"	15.75" x 19.7"
Overall dimensions	23" x 24" x 72"	23" x 24" x 72"
Weight	430 lbs	430 lbs
Auto feed rate (in/r)	.004, .006, .009, .012	.004, .006, .009, .012

ACCESSORIES

This machine includes:

- Drill press vise (SKU: 9612401) x1
- Forward/reverse foot pedal (SKU: 964848401) x1
- Chuck, 3/4", JT4, w/ key (P/N 964848301) x1
- Arbor MT3/JT4 (P/N 964848201) x1

HANDLING

THREADING - MANUAL FEED

When using different courses of thread, it is not allowed to exceed the recommendation shown in the table below. Otherwise, the depth stop bottoms or gets displaced, or - in worst case - the quill collar might break off. See the table:

Threads	Rotation Speed 50 Hz Max.	Rotation Speed 60 Hz. max.
0 - 0.5 mm	440 RPM	530 RPM
0.5 - 1.0 mm	265 RPM	320 RPM
1.0 - 2.0 mm	160 RPM	190 RPM

The maximum number of reversals is 5 per minute. In order to get better quality threading, we recommend using a floating tap wrench. See figure 9.

1) Depending on the thread depth, the spindle speed should be set differently. See the table above.

- Select the spindle speed using the two gear levers (1) on the left side of the gearbox. See the sign on the front side of the machine.
- If any of the gears are difficult to get into position, rotate the spindle nose manually.

NOTE: The machine cannot be shifted during operations.

2) There are 2 different ways to reverse the spindle rotation of the machine
   - Reversing using the switch/speed selector (2), see "Reversing by using the switch/speed selector".
   - Automatic reversing using the level switch. The desired drill depth is set with the drill depth stop (3), see "Automatic reversing by using the drill depth stop (optional)".

REVERSING BY USING THE SWITCH/SPEED SELECTOR

1) Follow the steps in "Drilling", page 4.
2) Set the drill depth stop in the upper position.
3) Turn the switch/speed selector to position ↻ "1" or "2", see the table above or the sign on the front side of the machine.
4) Feed the spindle manually downwards with the feed lever.
5) At the desired drill depth, turn the selector anti-clockwise to position ↺ "1" or "2".
6) Feed the spindle manually upwards with the feed lever. Turn the selector clockwise to position "0".

DRILLING - AUTOMATIC FEED

⚠ **WARNING:** Use the lock handles to lock the drill head, table arm and the table. Make sure that the work piece is securely fastened at the table. Carefully read through the safety instructions in this manual before using the machine. For manual drilling and

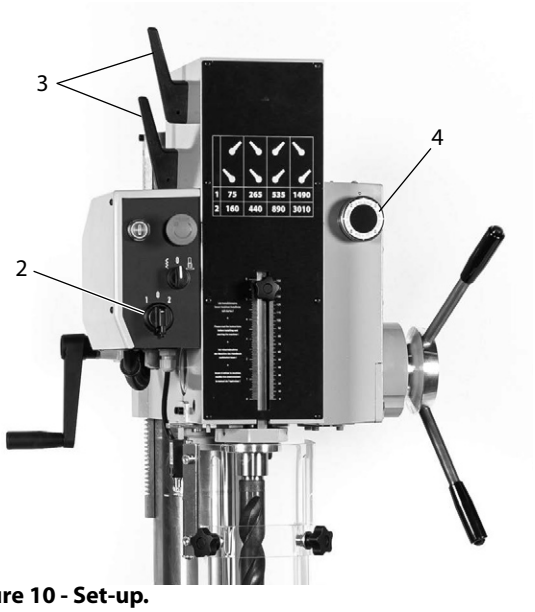


Figure 10 - Set-up.

The working cycle of machine feeding is initiated as the drill spindle is fed down with the feed lever to the work piece, see "Machine feed drilling".

See figure 10.

1) The machine is equipped with a 2-speed motor. Select the spindle speed using the two gear levers (3) on the left side of the gearbox, see the sign on the front side of the machine.

- If any of the gears is difficult to get into position, rotate the spindle nose manually.

NOTE: The machine cannot be shifted during operations.

2.) Turn the switch/speed selector (2) to position ↻ "1" or "2", see the sign on the front side of the machine.

3) The feed speed is set with the knob (4) on the right side of the feed box.

NOTE: The feed rate can be set while the machine is in operation, but not when loaded. The knob cannot be turned directly from the highest to the lowest feed rate, or vice versa. You always have to go through the middle positions.

4.) Use machine feed drilling according to chapter" Machine feed drilling" or feed manually according to chapter "Manual drilling".
5) At bottom holes, repeat the drilling to eliminate tensions.
6) Check the measurements and adjust the drilling depth if necessary.

MACHINE FEED DRILLING

threading, make sure the claw coupling is inserted.

1) Make sure the claw coupling is in its outer position.
2) Set the machine feed drill depth according to chapter "Setting the drill depth" below.
3) Feed down the drill spindle with the feed lever to the work piece. When the drill pressure is on, the machine feed is connected and the machine drills to the preset drill depth. The drill spindle then returns to its original position.

- The machine feed's repeated accuracy is 0.1 – 0.2 mm. If required, the feed can be cancelled by holding back the hand feed lever.

HANDLING (CONTINUED)

SETTING THE DRILL DEPTH

First, set the machine fed drill depth, see figure 11:

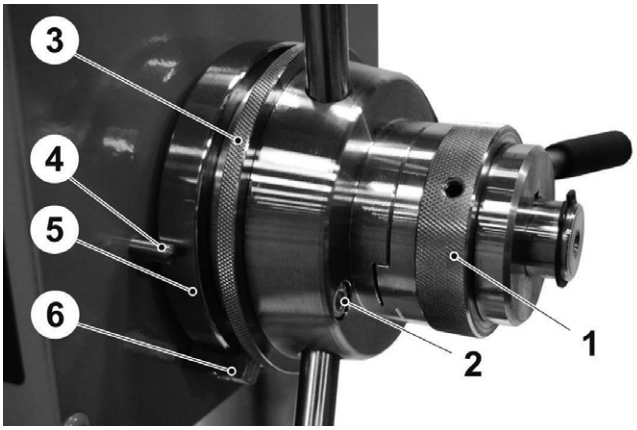


Figure 11 - Coupling.

1) Lock the drill depth scale in its upper position.
2) Remove the coupling (1) towards the right.
3) Loosen the two hexagon socket head screws (2) in the hand lever fastener.
4) Feed the spindle down to the desired drill depth. In the event of machine feeding, the spindle goes approximately 3 mm longer than what is set. The mechanical design means that it has to be set this way.
5) Push the inner ring's (5) stop heel (6) against the top side of the stop pin (4).
6) Turn the grooved ring's (3) stopper toward the top of the stop heel.
7) Tighten both of the female screws before releasing the spindle.

ADJUSTING THE FEED SWITCH

The feed is set at the factory so that the machine can not be overloaded. However, after using the machine for a while, the coupling may need to be readjusted:

NOTE: The turning of the ring nut which is about to be performed is only marginal (a few millimeters).

1) Remove the claw coupling.
2) Disengage the locking on the ring nut.
3) The ring nut has 4 positions for locking with the locking washer. Check which position that is closest to a locking position.
4) Rotate the ring nut (pointed out in figure 12) clockwise to this position and lock the ring nut on the locking washer. This provides a greater feeding power.

When drilling with sensible boring tools, it may be necessary to use a lower power for feeding. Adjustments are made as above, but the ring nut is rotated counter-clockwise.

In the event that the drill pressure is too high, the coupling acts as an overload protection.

Figure 12 – Adjusting the feed switch.

DRILL EJECTOR

The machine is equipped with an automatic drill ejector. Between the nose of the spindle sleeve and the spindle case, there is a stopper that prevents the spindle from reaching its upper position.

NOTE: When ejecting the boring tool from a machine with automatic feed, the claw coupling must be inserted.

AUTOMATIC EJECTION

To eject the drill:

1) Bend out the stopper (see the arrow in figure 14).
2) Grip the tool and hit the spindle sleeve to its upper position with the feed lever. The boring tool should be pushed out.

Figure 14 - Automatic drill ejection.

3) Bend the stopper back.
4) Mount a new tool to the spindle.

EXPELLER WEDGE

The boring tool may become stuck in the spindle, e.g., via hard drilling pressure and heat changes in the spindle. In this case, we recommend using an expeller wedge instead of the automatic drill ejector, see figure 15.

Figure 15 - Expeller wedge.

MAINTENANCE

OIL FILLING, FEED GEAR BOX

The machine is not supplied with oil in the power feed gearbox.

- The feed gear box's worm gear sits in an oil bath. Add oil via the filling hole (1) up to the middle of the level indicator (2), see figure 16. Approx. 0.3 liters should be kept available to cover the need.

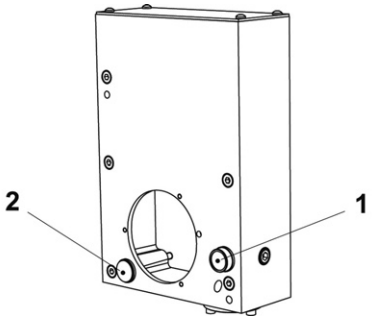


Figure 16 - Oil filling and level indicator, feed gear box

OIL RECOMMENDATIONS

Proper oil should have a viscosity of 5 °E at 50 °C.

NOTE: The guarantee of the machine is based on the use of these oils - at normal temperatures.

Oil company	Oil type
OK Petroleum	Delta Oil 68
BP	BP Maccurant 68, BP Bartran 68
Castrol	Castrol Hyspin AWS 68
Texaco	Texaco HD 68
Statoil	Nuto H68
Mobil	Mobil DTE 26, Mobil Vactra Oil No 2
Shell	Shell Tellus Oil 68, Shell X-100 10W/30

CLEANING

- Always make sure that the boring tool tongue and cone are well-cleaned and not damaged. This to avoid unnecessary wear and tear of the drilling spindle and/or the boring tool getting caught in the spindle.
- Keep the table and work piece free from chips. Use a brush, not compressed air.

LUBRICATION

All ball bearings and gear wheels are lubricated at the factory. For other lubrication; check levels regularly and apply grease, if necessary, see figure 17 and figure 18.

DRILL HEAD

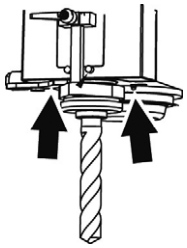


Figure 17 - Grease nipples, drill head.

WORM GEAR BOX

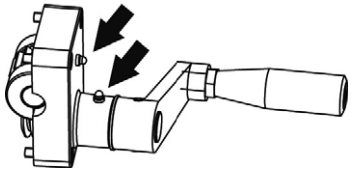


Figure 18 - Grease nipples, worm gear box.

REPAIR

For parts, service or technical support please contact Palmgren at:

C. H. Hanson
2000 North Aurora Road
Naperville, Illinois 60563
(800) 827-3398
sales@chhhanson.com

CORRECTIVE MAINTENANCE

GENERAL

⚠ **WARNING:** Disconnect the machine from the external mains before any dismantling takes place.

On reassembly, see to it that all surfaces are clean and that any burrs, which may have been made during disassembly, are first removed.

ADJUST THE TAPER BEARING PLAY

The spindle is journaled in the quill by a taper roller bearing at the bottom and by a radial ball bearing at the top. At the top end of the spindle, there is a nut, with which the play in the taper bearing can be adjusted. This nut can be reached, when the quill is removed from the machine as follows:

1) Remove the depth stop rod, see figure 19.

Figure 19 - Removing the depth stop rod.

2) Feed out the complete quill with the feed handle. Hold the quill, so that it doesn't fall out and gets damaged.
3) Loosen the spring pressure by letting the feed handle slowly return.
4) Adjust the play at the top end of the quill by turning the nut clockwise. Make sure it does not turn heavily, see figure 20.

Figure 20 - Nut for adjusting the play of the quill.

5) Turn the feed handle about two turns for counter balancing the quill.
6) Put back the quill and make sure the keys on the spindle coincide with the key ways in the spindle shaft and that the teeth of the feed shaft get the grip of the quill feed rack.
7) Let the quill return to the top position. Check the position of the feed handle and adjust by the feed shaft teeth grip another rack position.
8) If necessary, feed out the quill and turn the feed handle to further counter balance the quill as described in "Counter Balancing the Spindle" on page 7.
9.) Re-assemble the depth stop rod.

COUNTER BALANCING THE SPINDLE

Counter balance the spindle by tightening the spring in the spring housing as follows:

1) Remove the depth stop rod and feed out the complete quill, see "Adjust the Taper Bearing Play" on page 7.
2) Increase the return speed (the spring is tightened) by turning the feed handle 1/4 turn clockwise. Reduce the return speed by turning the feed handle 1/4 turn anti-clockwise.
3) Put back the quill and re-assemble the depth stop rod, see "Adjust The Taper Bearing Play" on page 7.

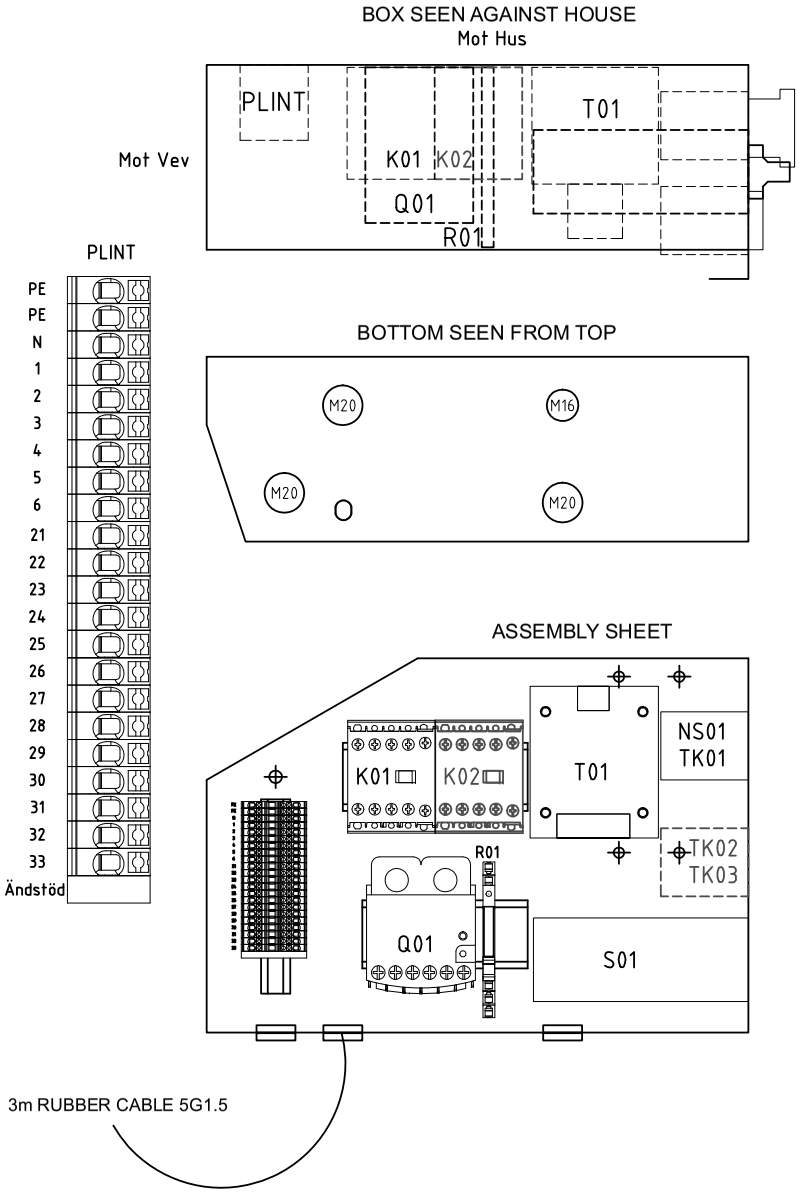
MOTOR

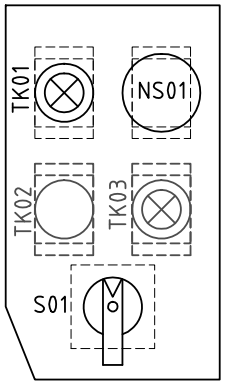
In case of motor failure, please contact Palmgren for further information.

GEARBOX

In case of gearbox failure, please contact Palmgren for further information.

ELECTRICAL SCHEMATICS





TK02 & TK03
ARE OPTIONS
NO HOLE IN THE
FRONT SIGN
FOR THESE

FUNCTION:

1. SET SWITCH TO MODE "0"
   PRESS TK01 FOR MACHINE READY TO OPERATE
   THE LAMP IN THE BUTTON LIGHTS ON
   NOW YOU CAN DRIVE FORWARD / BACK AND 2 SPEEDS VIA S01
2. TRIGGERED EMERGENCY STOP
   RESET THE EMERGENCY STOP
   FOLLOW STEPS ABOVE, IN #1
3. TRIGGERED OVERCURRENT RELAY
   RESETS AUTOMATICALLY
   FOLLOW STEPS ABOVE, IN #1
4. TRIGGERED DRILLGUARD(OPTIONAL)
   FOLD BACK THE DRILLGUARD
   FOLLOW STEPS ABOVE, IN #1
5. FOOT CURRENT SWITCH
   FOLLOW STEPS ABOVE, IN #1
   START / STOP ALSO VIA THE FOOT POWER SWITCH
6. FOOT REVERSAL
   FOLLOW STEPS ABOVE, IN #1
   FRAM-0-BACK ALSO VIA FOOT REVERSION SWITCH

   AUTOMATIC REVERSAL (OPTIONAL)
   ON / OFF VIA LAMP PUSH BUTTON TK03

SETTING Q01

PROTECTION Q01 IS BASICLY WINDED THREE TIMES

THIS MEANS THAT THE SCALING WILL BE 1-10A INSTEAD OF M3-30A

FOR A MOTOR OF 5A, Q01 SHOULD BE SET OF 15A (3X5 = 15)

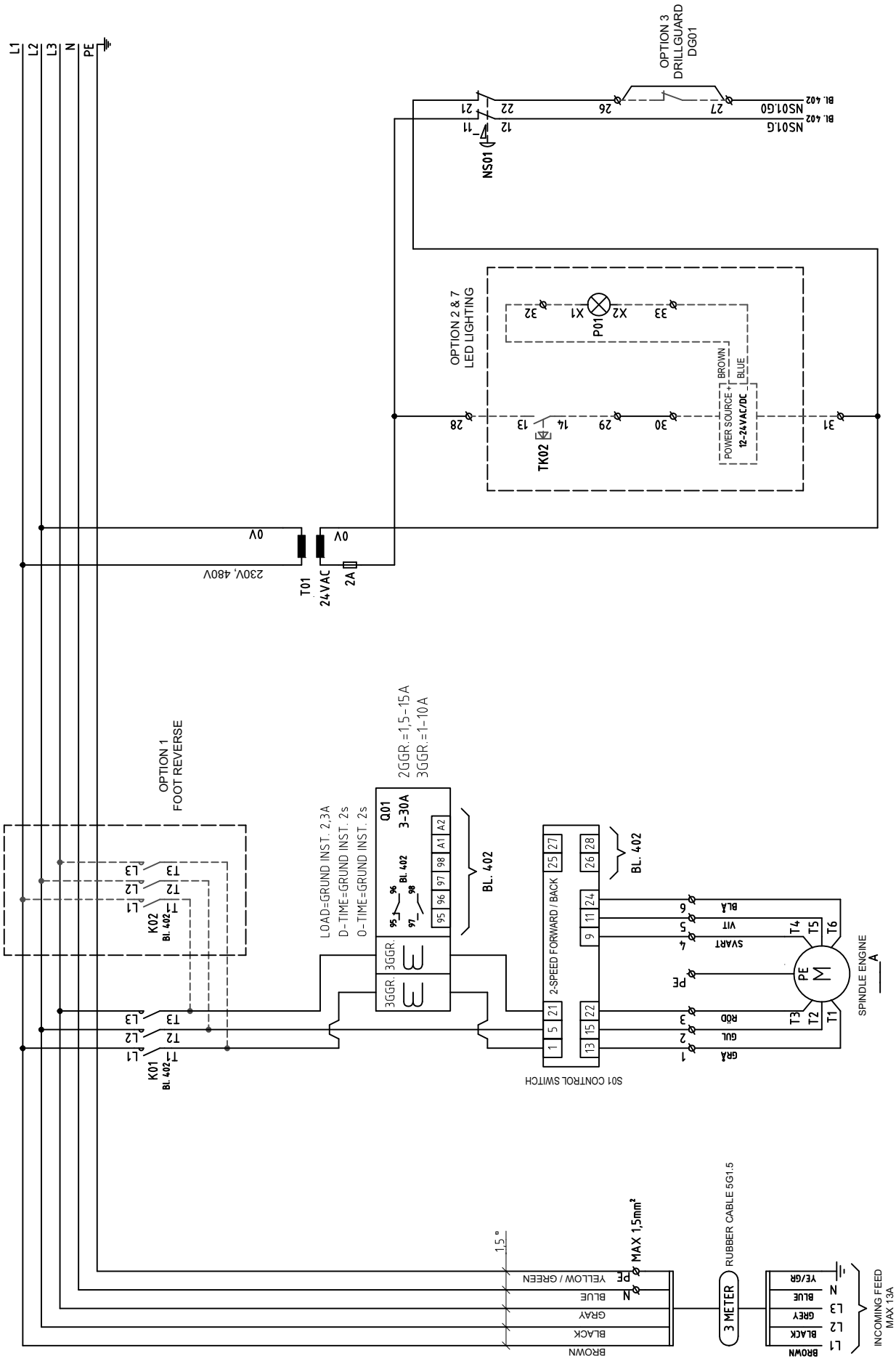
ELECTRICAL PARTS LIST

Ref. No.	Designation	Make	Type/No.	Data	Sheet
FRS01	FRONT SIGN	INFOSERVICE	SEE TEMPLATE		202
K01	MINI CONTACTOR	SCHNEIDER ELECTRIC	LC1-K0910B7	24VAC/9A 4kW	402
NS01	CONNECTOR 2NC	SCHNEIDER ELECTRIC	ZB5AZ1045	2br BLADE SPRING CONNECTION	401
NS01	EMERGENCY STOP BUTTON	SCHNEIDER ELECTRIC	ZB5AS844	TRIGGER ACTION	401
Q01	ELECTR. OVERCURRENT RELAY	SCHNEIDER ELECTRIC	LT4730BS	3-30A 24VAC/DC	401
R01	RELAY MODULE	PHOENIX	PLC-RPT- 24UC/21 / 2900300	24VAC/DC 1vxl	402
S01	CONTROL SWITCH	SONTHEIMER	WAH2119/13ZM/X99/Z20	DAHLANDER 2 Hast.Fram/Back	401
T01	Transformer	NORATEL	CUSTOMIZED 24VAC/2A	0-230-400-440-480-575V / 24V	401
TK01	CONNECTORS 1NO	SCHNEIDER ELECTRIC	ZB5AZ1015	1SL BLADE SPRING. CONNECTION	402
TK01	LAMP PRESSURE RE-FJ.	SCHNEIDER ELECTRIC	ZB5-2001HC5ZO	GREEN "1"	402
TK01	LAMP BLOCK GREEN LED	SCHNEIDER ELECTRIC	ZBVB35	24V BLADE SPRING. CONNECTION	402
X01 (19)	MINIPLINT PUSH-IN	PHOENIX CONTACT	MPT 1,5/S	0,14 mm² - 1,5 mm²	
X01 (1)	MINIPLINT PUSH-IN	PHOENIX CONTACT	MPT 1,5/S BU	0,14 mm² - 1,5 mm²	
X01 (2)	MINIPLINT PUSH-IN	PHOENIX CONTACT	MPT 1,5/S-PE	0,14 mm² - 1,5 mm²	

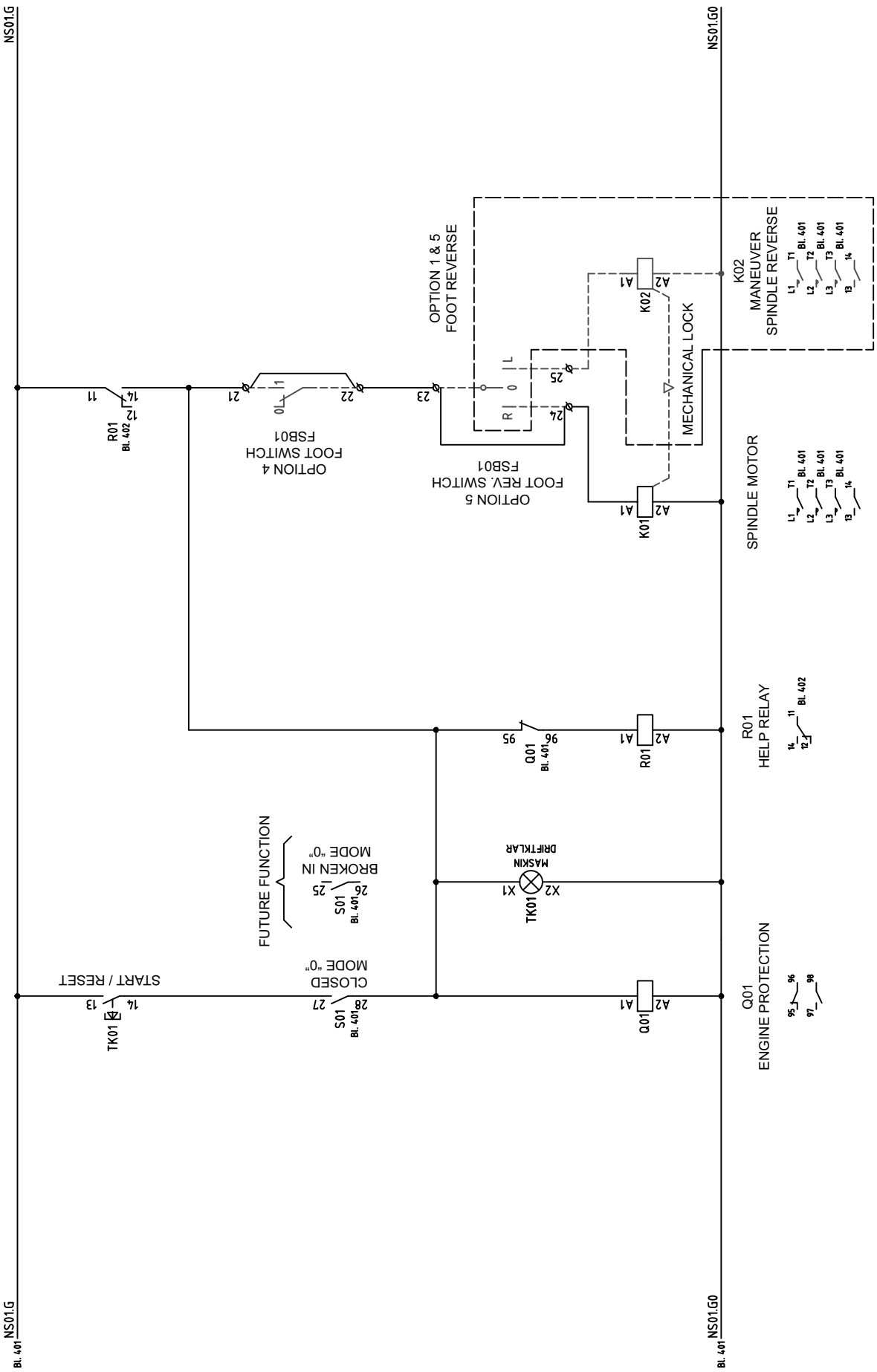
ELECTRICAL PARTS LIST

Ref. No.	Designation	Make	Type/No.	Data	Sheet
<OPT.1>					
K02	FRONT/BACK CONTACTOR	SCHNEIDER ELECTRIC	LC2K0910B7	24VAC/9A 4kW	402
<OPT.2>					
TK02	Push-button	SCHNEIDER ELECTRIC	ZB5-2001HC55T	PRESS-TAP WITH LAMP SYMBOL	401
TK02	CONNECTORS 1NO	SCHNEIDER ELECTRIC	ZB5AZ1015	1SL BLADE SPRING. CONNECTION	401
<OPT.3>					
DG01	BOUNDARY POSITION DRILL PROTECTION		COMEPI	EP1G14	401
<OPT.4>					
FSB01	FOOT CURRENT SWITCH	Art. 3E02007		1SL + 1BR CONNECTOR	402

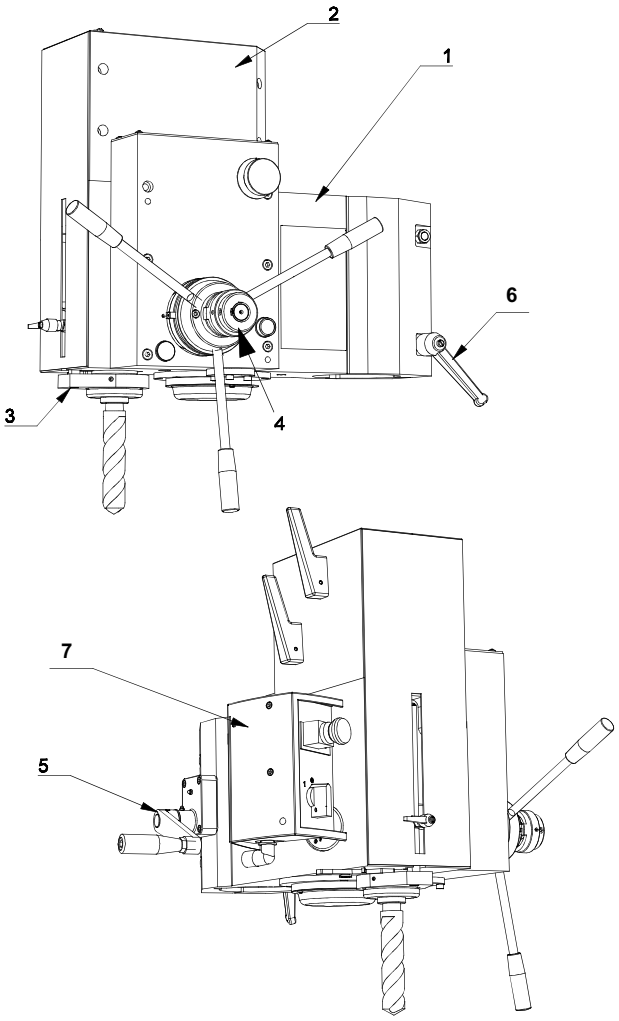
ELECTRICAL SCHEMATICS



ELECTRICAL SCHEMATICS

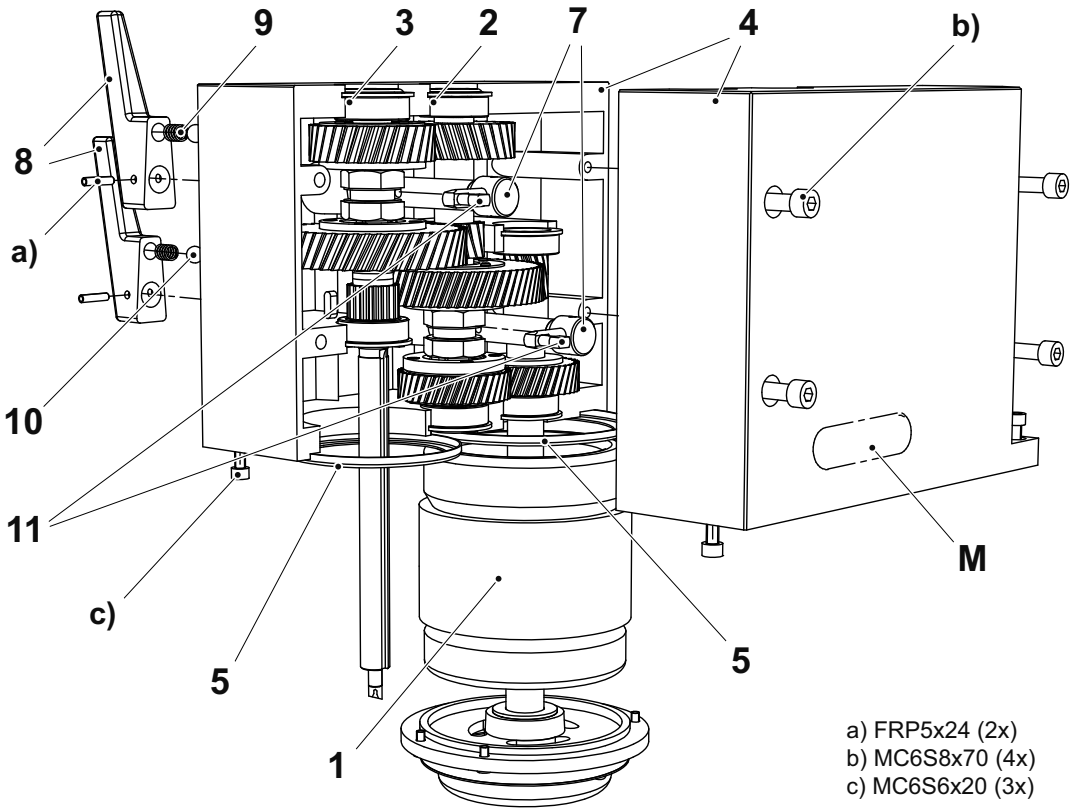


PARTS FOR DRILL HEAD



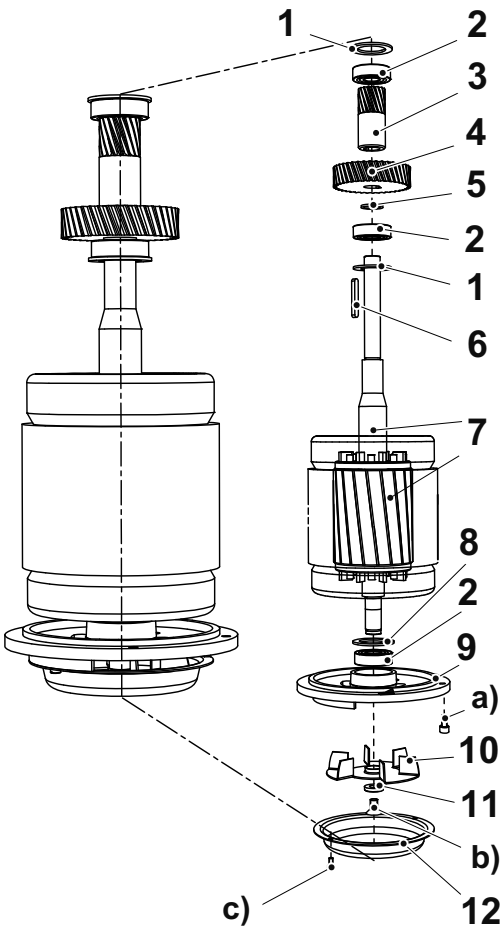
Ref. No.	Part Number	Description	Note
1	2V08621-1	Spindle housing	
2	2X08618-B	Gear box	
3	2X08617	Spindle sleeve	
4	2I08456	Feed shaft	
5	2X08720-1R	Worm gear unit	
6	3R00014-1	Lock handle	
7	2X08791-1	Electric box compl.	

PARTS FOR GEAR BOX



Ref. No.	Part Number	Description	Note
1	2X08561-B	Motor shaft complete	
2	2X08570R	2:nd shaft complete	
3	2X08581R	3:rd shaft complete	
4	2X08523-1	Gear box complete	
5	4B00174	Ring	2x
7	2X08536	Gear selector arm	2x
8	2RS0653-1	Gear lever	Kompl. 2XS0653-1
9	4C02921	Gear	2x
10	3T04028	Steel ball	2x
11	4T04168	Shift pin	2x

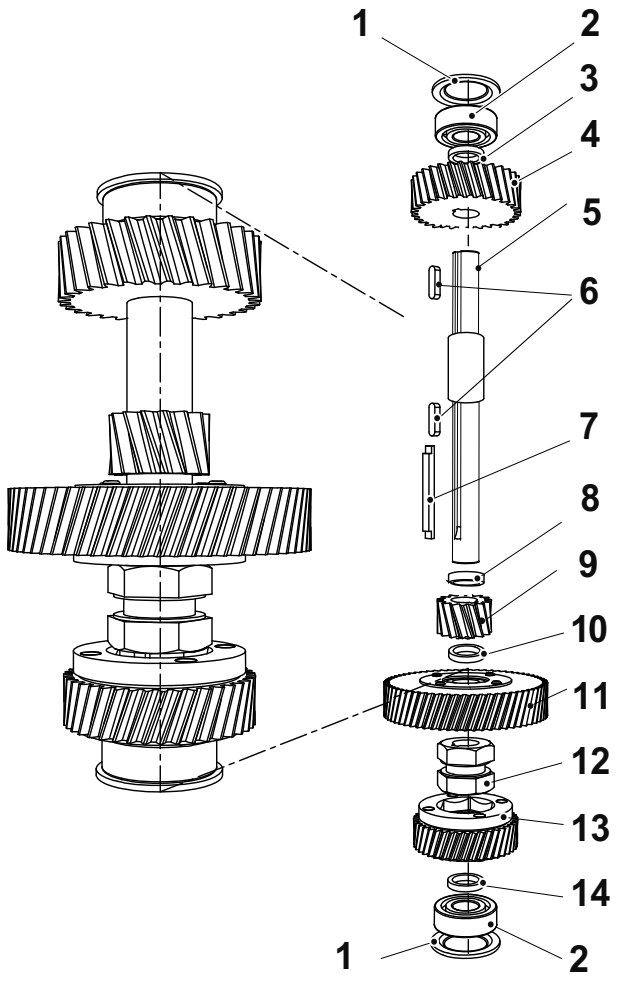
PARTS FOR ENGINE SHAFT



a) MC6S5x10 (4x)
b) MF6S8x14
c) MC6S4x8 (2x)

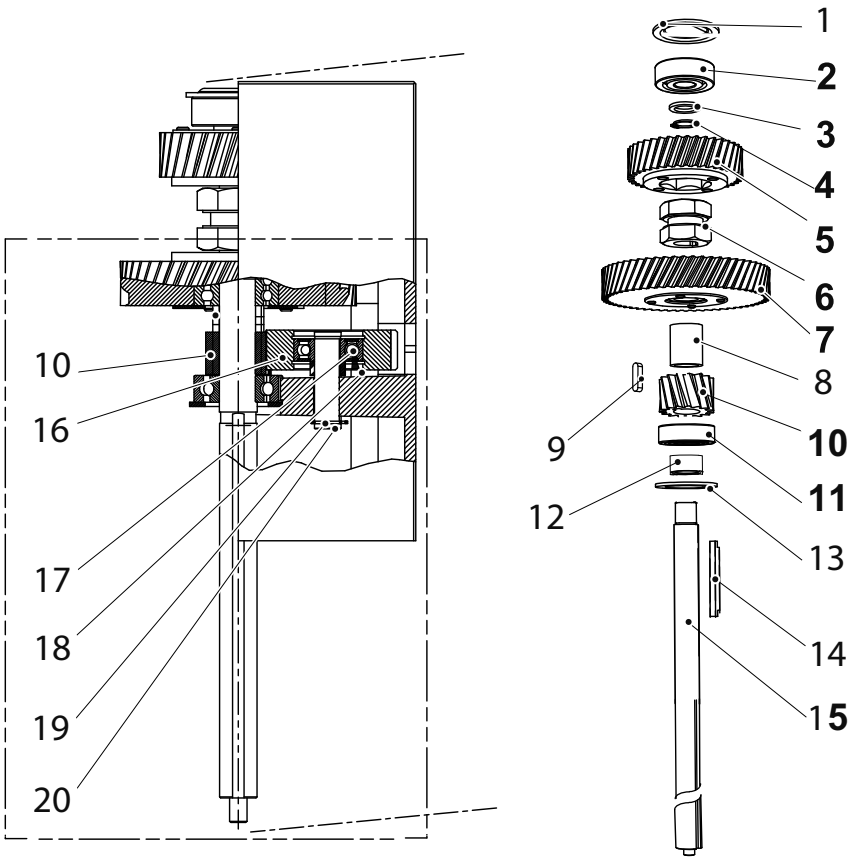
Ref. No.	Part Number	Description	Note
1	4B00137	Washer	
2	3L15003	Ball bearing	6203-2RS (3x)
3	2H08562	Gear	17-1,5
4	2H08563	Gear	40-2
5	2D00008	Spacing sleeve	17x6,5
6	3K01196	Key	RKh9 5x5x42
7	3E80083R	Stator + rotorshaft Stator 80/2-24-100	400 - 440 V
8	4F06203	Washer	
9	2N01889	Bearing cover	
10	4B00175	Fan	
11	2B03449	Washer	
12	4B01890	Fan cover	

PARTS FOR SECOND SHAFT



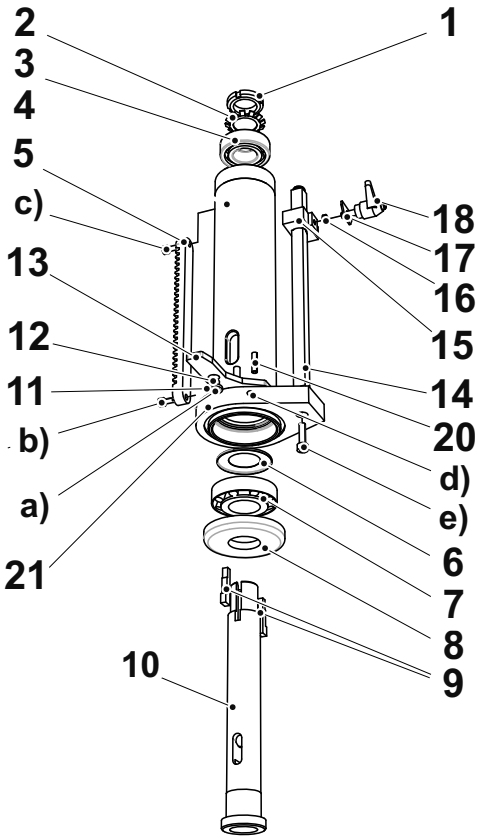
Ref. No.	Part Number	Description	Note
1	4B00138	Cover	2x
2	3L15003	Ball bearing	6203-2RS (2x)
3	2D00002	Spacing sleeve	17x2,5
4	2H08572	Gear	34-2
5	2A04871	2:nd shaft	C-4871
6	3K01187	Key	RK 5x5x20 (2x)
7	2T06615	Key	C-6615
8	3B11005	Washer	17x24x1
9	2H08573	Gear	15-2
10	2D17004	Spacing sleeve	17x4
11	2X08574R	Gear compl.	79-1,5 (fiber)
12	2T04254	Clutch	C-4254
13	2X08575R	Gear compl.	33-2 (fiber)
14	2D00008	Spacing sleeve	17x6,5

PARTS FOR THIRD SHAFT



Ref. No.	Part Number	Description	Note
1	4B08584	Cover	C-138
2	3L15002	Ball bearing	6302
3	3B01184	Ring	15x22x1
4	3C01117	Circlip	SgA 15
5	2X08582R	Gear compl.	39-2 (fiber)
6	2T04254	Clutch	C 4254
7	2X08583R	Gear compl.	58-2 (fiber)
8	2D00007	Spacing sleeve	17x28,5
9	3K01186	Key	RKh9 5x5x18
10	2HSB7501-2	Gear wheel	18-1,5
11	3L15003	Ball bearing	6203-2RS
12	2D17019	Spacer	17x19
13	4B00137	Cover	C-137
14	2T06615	Key	C-6615
15	2A08531	Spindle shaft	
16	2X08558	Gear complete feed	
17	3L13001	Bearing	6201 2Z
18	2D12017	Spacer	12x17
19	3C01114	Circlip	SGA 12 (2x)
20	2A08548	Feed gear shaft	

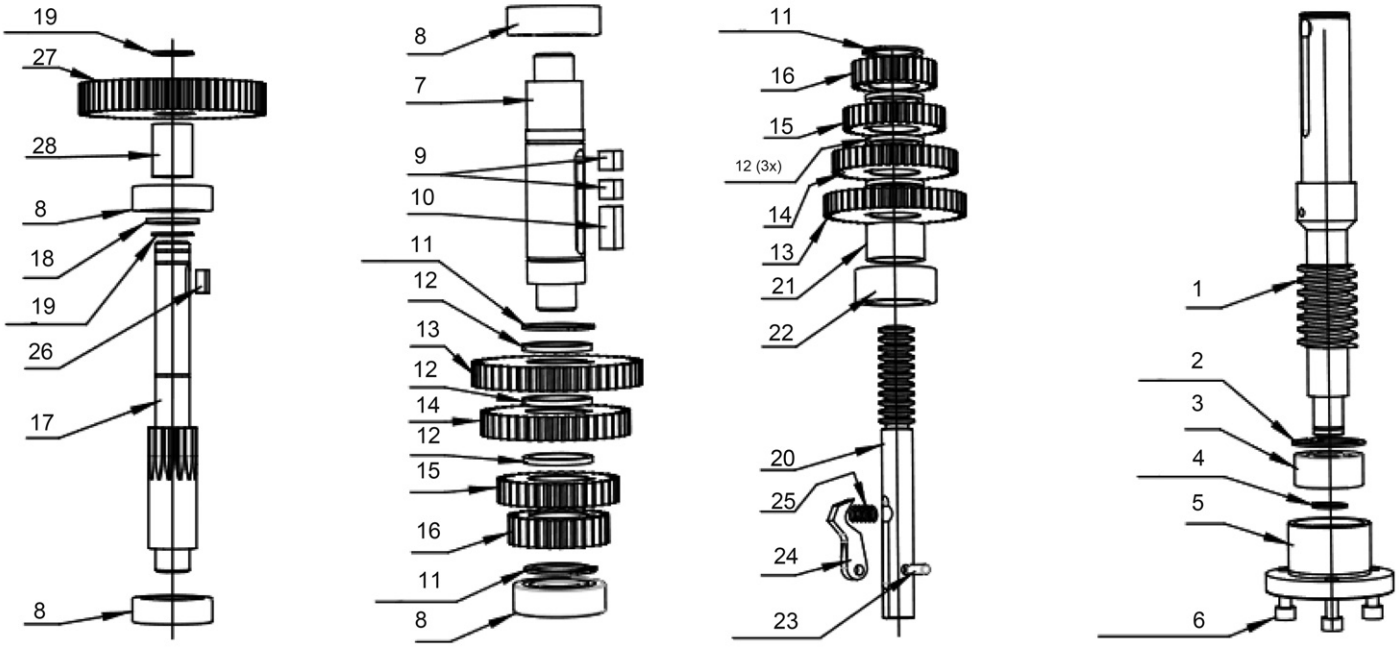
PARTS FOR SPINDLE SLEEVE

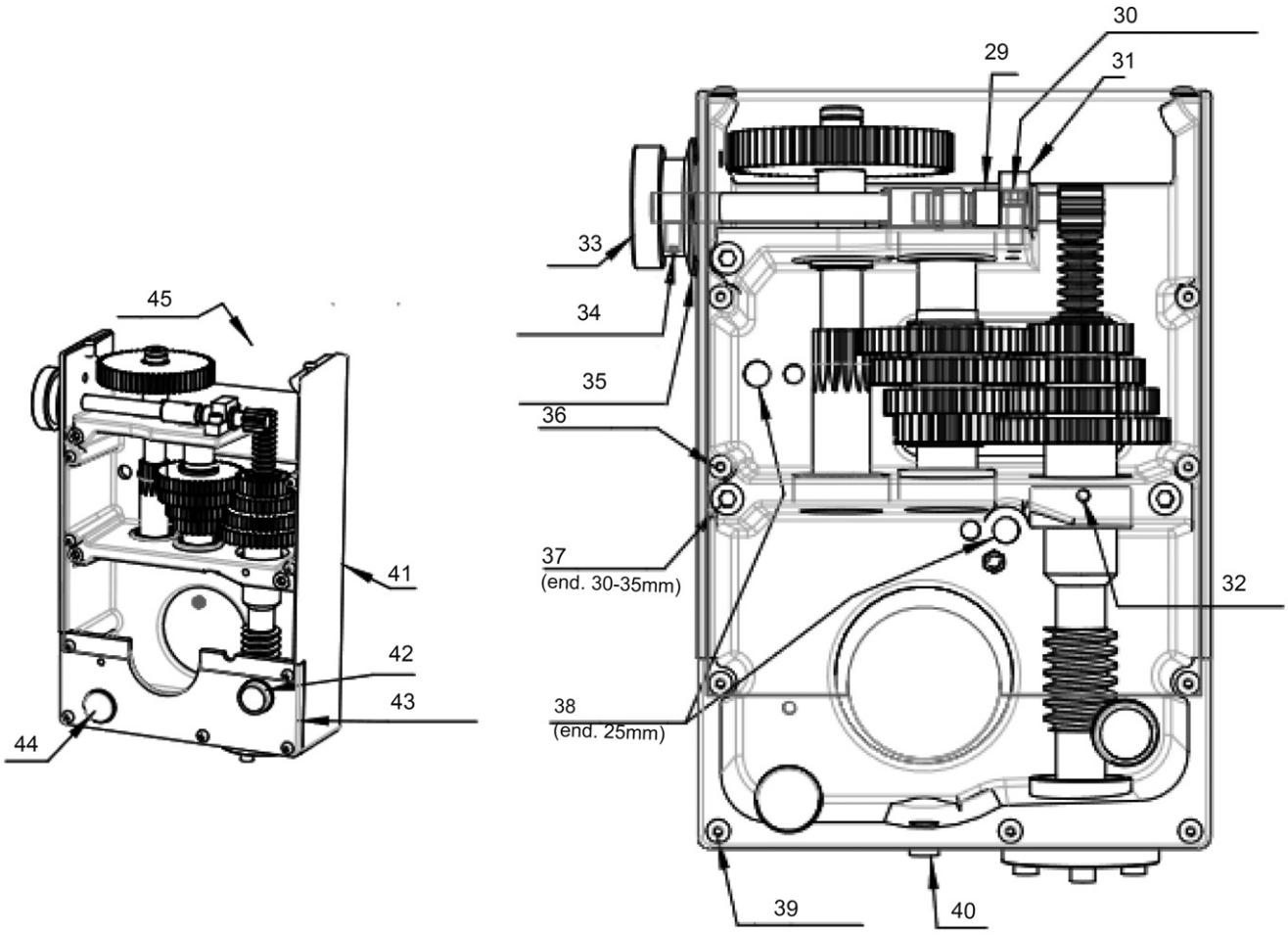


a) MF6S5x20
b) MC6S5x10 + FBB 5.1
c) MC6LS5x10 + FBB 5.1
d) SK6SS 6x8 (3x)
e) MC6S6x20 Esloc

Ref. No.	Part Number	Description	Note
	2X08529R	Spindle sleeve compl.	
1	3M06005	Nut	KM5
2	3B07005	Locking washer	
3	3L15005	Ball bearing	6205
4	2G08529	Quill	
5	4I08754	Rack	
6	4B03769	Washer	
7	3L51006	Taper roll bearing	30206
8	2TS2019	Bearing cover	
9	2T08518	Key for spindle	
10	2A08517R	Spindle	MK3
11	3B06003	Washer	10,5x18x0,8
12	2T08593	Spacer	
13	4T08547	Drill ejector lever	
14	2A08756-1R	Depth gauge rod	
15	2T08759	Stop	Kompl. 2X08759R
16	4CSB140046	Spring	
17	4L08626	Indicator	
18	3R00003	Handle	43-M6x16
20	3P12308	Pin	FRP 5x20
21	2N08551R	Quill collar	

PARTS FOR POWER FEED BOX

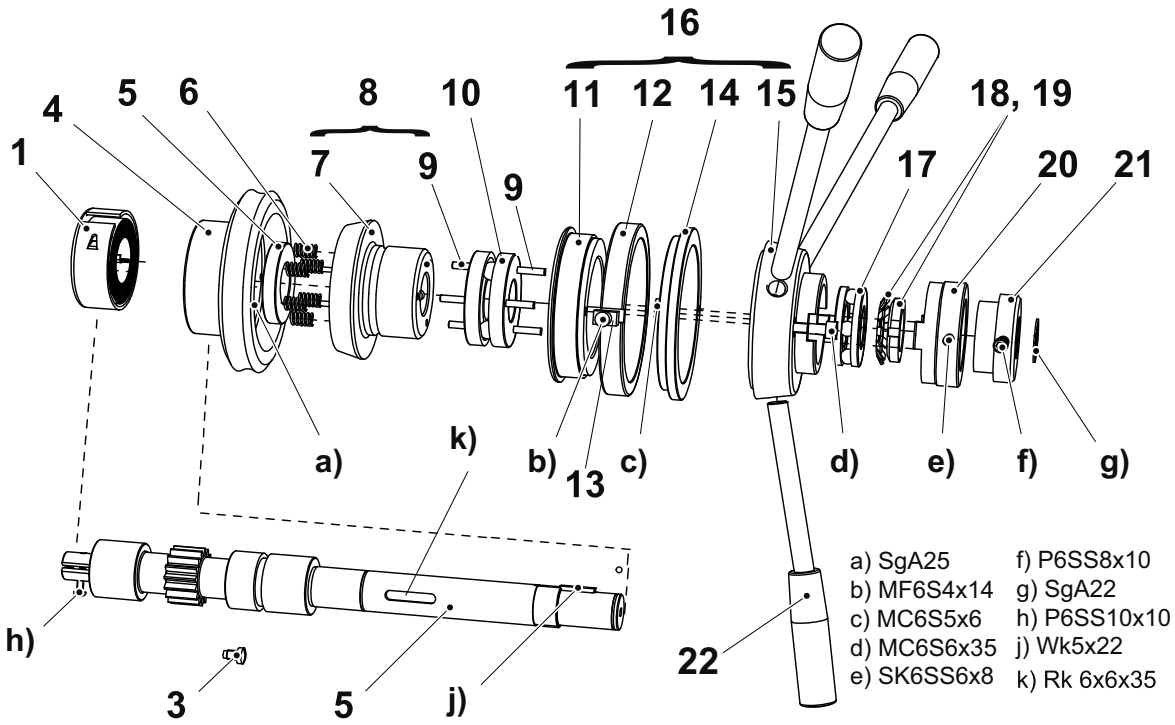




PARTS FOR POWER FEED BOX (CONTINUED)

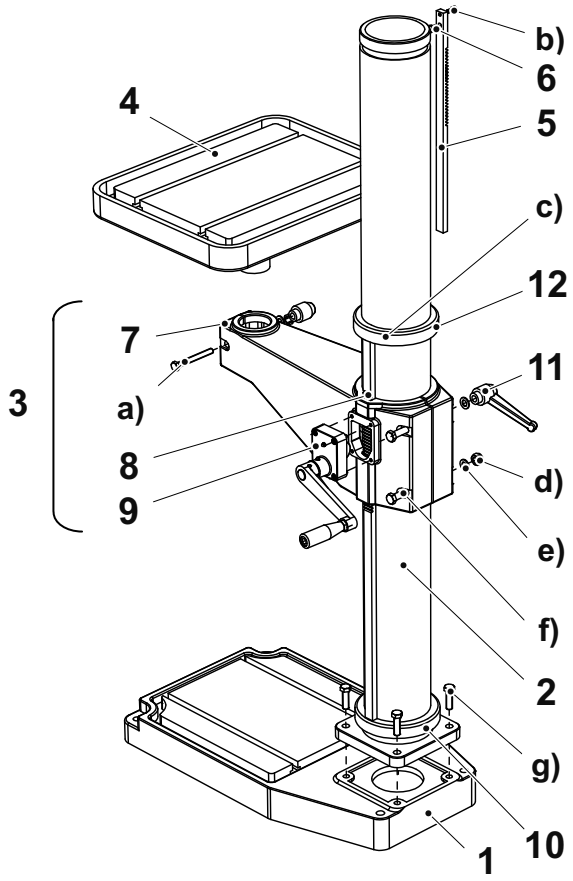
Ref. No.	Part Number	Description	Note
1	2I08639	Worm shaft feed box	
2	3C02133	Circlip	SGH 35
3	3L40002	Bearing	3202
4	3C01117	Circlip	SGH 15
5	2T08555	Bearing housing	
6	3S03370	Screw	MC6S 6x20 (3x)
7	2A08541	Feed shaft	
8	3L15003	Bearing	6203-2RS (4x)
9	3K00934	Key	TK 8x7x8 (2x)
10	3K00294	Key	TK 8x7x18 h9
11	3C01126	Circlip	SGA 25
12	2B03150	Washer	(6x)
13	4H08556-7	Gear wheel	47-1,5 (2x)
14	4H08556-6	Gear wheel	41-1,5 (2x)
15	4H08556-5	Gear wheel	33-1,5 (2x)
16	4H08556-4	Gear wheel	27-1,5 (2x)
17	2I08540	Gear shaft	
18	2D17002	Spacer	17x2
19	3C01119	Circlip	SGA 17 (2x)
20	2I08649	Shaft feed gear box	
21	4DSB7530-2	Spacer	25x18
22	3L00010	Needle bearing	NA 4905
23	3P01307	Pin	CP 5x14
24	2TSB7534	Key	
25	4CSB11750	Spring	
26	3K00183	Key	TK 5x5x12
27	2HSB7546	Gear	60-1,5
28	2D00005	Spacer	17x26,5
29	2I08542-1	Gear shaft	
30	3S03372	Screw	MC6S 6x25
31	2N08457	Bearing bracket	
32	3S07366	Screw	S6SS 6x12
33	2X05431	Hand wheel	
34	3S04368	Screw	SK6SS 6x16
35	3C01114	Circlip	SGA 12
36	3S24323	Screw	K6S 5x8 (6x)
37	3S03468	Screw	MC6S 8x85 (3x)
38	3S03491	Screw	MC6S 10x20 (2x)
39	3S24331	Screw	K6S 5x20 (5x)
40	3S50002	Plug	R ¼"
41	4X08781	Feed gear box	
42	3S50005	Oil fill plug	
43	4N08781	Cover	
44	3T03002	Oil sight glass	
45	4L08783	Cover	

PARTS FOR FEED SHAFT



Ref. No.	Part Number	Description	Note
1	4XS2150R	Return spring	
2	2I08456	Feed shaft	
3	4S04211	Guide screw	
4	2ISB7523-2	Worm wheel	
5	2TSB142081	Pressure plate	
6	4CSB548090-2	Clutch head spring	6x
7	2NSB142080	Clutch head	
8	2XSB142080	Clutch head	
9	3P07257	Pin	6x
10	2TSB548091R	Clutch half with steelballs	2x
11	2TSB548092	Lock ring	
12	2TSB548093-1	Stop ring	
13	2TSB548093-3	Stop	
14	2TSB548093-2	Adjusting ring	
15	2TSB548094-1	Handle holder	
16	2XSB548094	Handle holder compl.	
17	3L61005	Bearing	
18	3B07005	Locking washer	
19	3M06005	Nut	
20	2TSB548096-1	Coupling clutch	
21	2TSB548096-2	Coupling hub	
22	4E08758R	Feed lever	3x

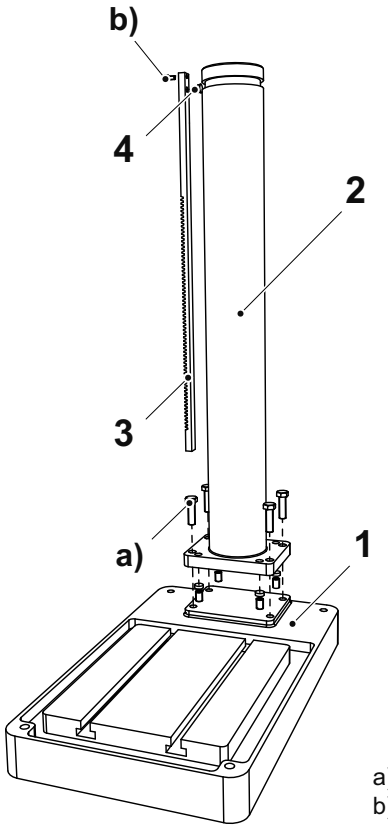
PARTS FOR COLUMN



a) MC6S12x90
b) MC6S6x10
c) SK6SS6x12 (3x)
d) Locknut M12
e) BRB13x24x2 (3x)
f) M6S12x120 (1x),
M6S12x130 (1x)
g) M6S12x40 (4x)

Ref. No.	Part Number	Description	Note
1	4W03040	Base plate	
2	9X08543	Column	
3	2X08730R	Table arm compl.	
4	2X07842R	Table compl.	500x400
5	2X08445	Rack	
6	2T07146	Pin	
7	2Y08730	Table arm	
8	4I03598	Rack table arm	
9	2X08720-1R	Worm gear compl.	
10	2N08568R	Lower ring	
11	3R00014-1	Lock handle	GN300 S108-M12
12	2N08567R	Upper ring	

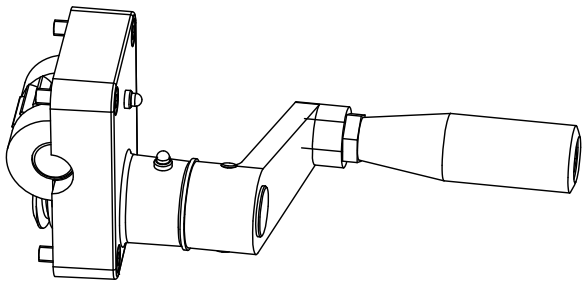
PARTS FOR COLUMN BENCH TYPE DRILL

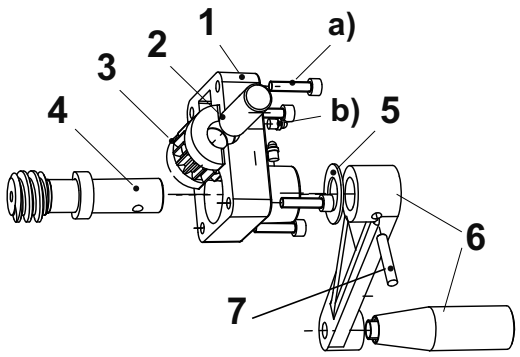


a) M6S12x40 (4x)
b) MC6S6x10

Ref. No.	Part Number	Description	Note
1	4W03040	Base plate	
2	4X08543-1	Column	
3	2X08545	Rack	
4	2T07146	Pin	

PARTS FOR WORM GEAR BOX COMPLETE





a) MC6S6x25 (4x)
b) Lub.nipple Ø6 (2x)

Ref. No.	Part Number	Description	Note
1	2N08720R	Worm gear box	
2	2A08725	Shaft	
3	4HS1201	Gear	
4	2IS1203-2	Worm shaft	
5	3L00027	Washer	AS 2035
	3L00025		AXK 2035
	3L00028		EPO 20 EMO"
6	3R01182	Crank compl. with handle	
7	3P06035	Pin	

ACCESSORIES

Part Number	Description	Notes
9612401	Milling vise	Not shown
964848401	Foot pedal	Not shown
964848201	Arbor, MT3/JT4	Not shown
964848301	Chuck w/key, 3/4", JT4	Not shown

NOTES

NOTES

PALMGREN WARRANTY

C.H. Hanson / Palmgren warrants their products to be free of defects in material or workmanship. This warranty does not cover defects due directly or indirectly to misuse, abuse, normal wear and tear, failure to properly maintain the product, heated, ground or otherwise altered, or used for a purpose other than that for which is was intended.

The warranty does not cover expendable and/or wear part (i.e. v-belts, screws, abrasives, jaws), damage to tools arising from alteration, abuse or use other than their intended purpose, packing and freight. The duration of this warranty is expressly limited to the terms noted below beginning from the date of delivery to the original user.

The Palmgren branded items carry the following warranties on parts:

All vises, clamps, positioning tables, arbor presses, tombstones, jack screws and vise accessories - LIFETIME.

All bench grinders, drill presses, tapping machines, band saws, lathes, milling machines, abrasive finishing machines and work stands - 3 YEARS.

All non-wear parts for the Arboga drill presses - 5 YEARS.

The obligation of C.H. Hanson / Palmgren is limited solely to the repair or replacement, at our option, at its factory or authorized repair agent of any part that should prove inoperable. Purchaser must lubricate and maintain the product under normal operating conditions at all times. Prior to operation become familiar with product and the included materials, i.e. warnings, cautions and manuals.

Failure to follow these instructions will void the warranty.

This warranty is the purchaser's exclusive remedy against C.H. Hanson for any inoperable parts in its product. Under no circumstances is C.H. Hanson liable for any direct, indirect, incidental , special or consequential damages including loss of profits in any way elated to the use or inability to use our products. This warranty gives you specific legal rights which may vary from state to state.

PALMGREN®
ARBOGA

Palmgren - a C.H. Hanson Company
2000 N. Aurora Rd., Naperville, IL 60563 U.S.A.
or call ***1-800-827-3398***