

Originalfassung

**DE BETRIEBSANLEITUNG**

Übersetzung / Translation

**EN OPERATING MANUAL**

**GETRIEBEBOHRMASCHINE MIT XL BOHRTISCH**

**GEAR DRIVEN DRILL MACHINE WITH XL TABLE**



**ZS40HS**



## 2 SICHERHEITSZEICHEN / SAFETY SIGNS

**DE** SICHERHEITSZEICHEN  
BEDEUTUNG DER SYMBOLE

**EN** SAFETY SIGNS  
DEFINITION OF SYMBOLS



**DE** **CE-KONFORM!** - Dieses Produkt entspricht den EG-Richtlinien.

**EN** **CE-Conformal!** - This product complies with the EC-directives.



**DE** Anleitung beachten!

**EN** Follow the instructions!



**DE** Benutzen von Handschuhen verboten!

**EN** Do not use gloves!



**DE** Maschine vor Wartung und Pausen ausschalten und Netzstecker ziehen

**EN** Switch off the machine before maintenance and breaks and pull out the mains plug.



**DE** Persönliche Schutzausrüstung tragen!

**EN** Wear personal protective equipment!



**DE** Gefährliche elektrische Spannung

**EN** Dangerous electrical voltage



**DE** Warnung vor Schnittverletzungen

**EN** Warning of cutting injuries

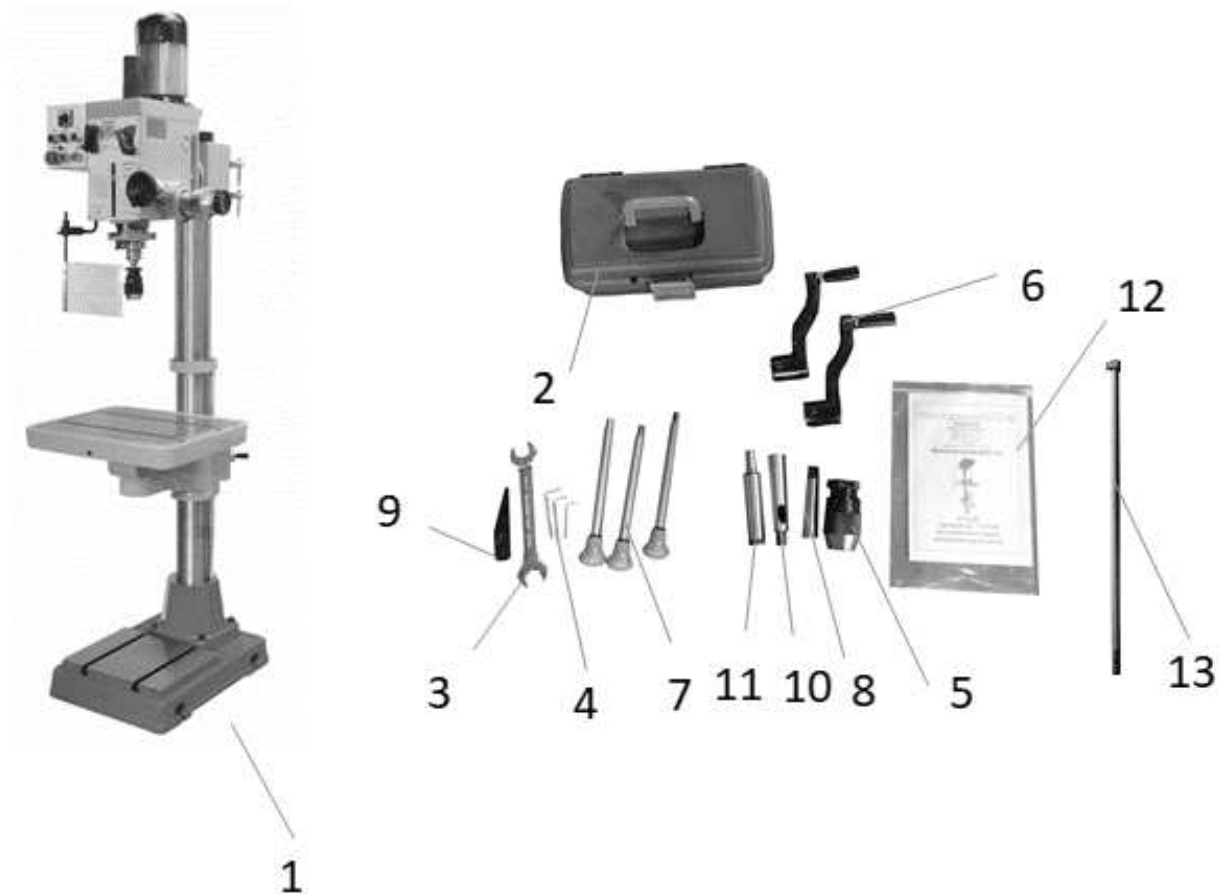
**DE** Warnung vor wegschleudernden Teilen!

**DE** **Warnschilder und/oder Aufkleber an der Maschine, die unleserlich sind oder die entfernt wurden, sind umgehend zu erneuern!**

**EN** **Missing or non-readable safety labels have to be replaced immediately!**

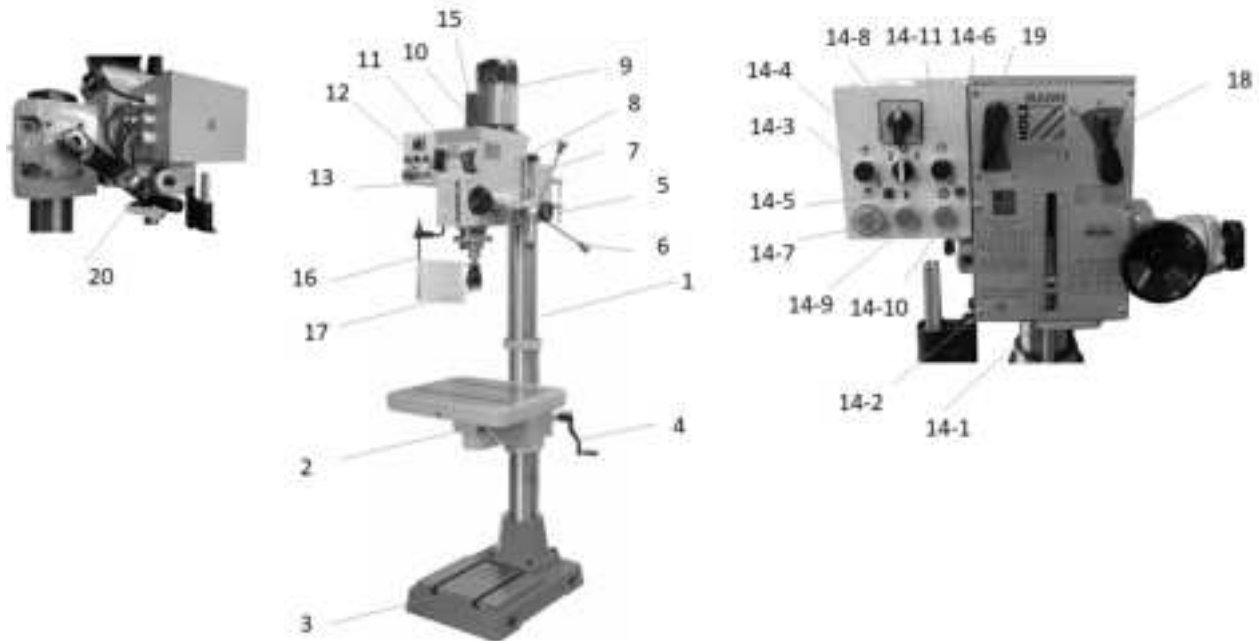
## **TECHNIK / TECHNICS**

### **3.1 Lieferumfang / Delivery Content**



Nº	Bezeichnung / description	Nº	Bezeichnung / description
1	Maschine / machine	8	MK-Adapter MK3-MK2 / morse taper adapter MT3-MT2
2	Werkzeugbox / tool box	9	Austreiberkeil / drill chuck drift
3	Gabelschlüssel / fork wrench	10	MK-Adapter MK4-MK3 / morse taper adapter MT4-MT3
4	Inbusschlüssel / allen key	11	Bohrfutterdorn MK4 B18 / drill chuck arbor MT4 B18
5	Bohrfutter B18 / Drill chuck B18	12	Bedienungsanleitung / manual
6	Handkurbel / crank handle	13	Anzugsspindel M12 / draw bar M12
7	Drehhebel / feed lever		

### 3.2 Komponenten / Components



N°	Bezeichnung / description	N°	Bezeichnung / description
1	Säule / Column	12	Bedienpult / control panel
2	Bohrtisch / table	13	Endschalter oben / upper limit switch
3	Standfuß / base	14-1	Endschalter unten / lower limit switch
4	Handkurbel Bohrtisch / crank handle (z-axis)	14-2	Bohrtiefenskala / bore deep indication
5	Fixierknopf für Feineinstellung Spindelhub / fixation knob for spindle travel adjustment	15	Spindelschutz / spindle protection cover
6	Drehhebel Spindel / feed lever spindle	16	Bohrfutterschutz / drill chuck guard
7	Handrad Feineinstellung Spindelhub / handwheel spindle travel adjustment	17	Bohrfutter / drill chuck
8	Getriebeölschauglas / gear box sight glass	18	Einstellhebel Spindelgeschwindigkeit (Pos I oder II) / adjustment lever spindle speed (Pos I or II)
9	Motor / motor	19	Einstellhebel Spindelgeschwindigkeit (L,H,M) / adjustment lever spindle speed (L,H,M)
10	Getriebeöleinfüllschrauben / gear oil filler plug	20	Handkurbel Bohrkopf / crank handle drill head
11	Getriebekasten / gear box		
<b>Bedienpanel-Detail / control panel detail</b>			
14-1	Endschalter unten / lower limit switch	14-7	Not-Aus-Schalter / emergency-switch
14-2	Bohrtiefenskala / bore deep indication	14-8	Wahlschalter Links-Rechtslauf / selection switch spindle rotation direction (CW-CCW)
14-3	Tipp-Betrieb / jog mode	14-9	Ein-Schalter / ON-switch
14-4	Wahlschalter Bohren-Gewindeschneiden-stop / Tapping-drilling-stop selection switch	14-10	Aus-Schalter / OFF-switch
14-5	Anzeigelicht Spindel im Vorlauf / indication light forward-direction activated	14-11	Drehrichtungsumschalter Gewindeschneidbetrieb / switch for changing spindle direction in tapping mode
14-6	Anzeigelicht Spindel im Rücklauf / indication light reverse-direction activated		

### 3.3 Technische Daten / Technical Data

Spezifikation/Specification		Wert/Value
Netzspannung (Frequenz) / voltage (frequency)	V (Hz)	400 V (50 Hz)
Motorleistung S1 (100 %) / motor power S1 (100 %)	kW	1,1
Anschlusskabelänge / cable length	m	2,5
T-Nutengröße / T-slot size	mm	14
Pinolenhub / tailstock sleeve travel	mm	120
max. Bohrleistung Stahl (Guss) / max. drilling capacity steel (cast iron)	mm	Ø 32 (Ø 40)
max. Ø Gewindeschneiden /-bohren Stahl (Guss)/ max. Ø threading / tapping steel (cast iron)	M	16 (20)
Ausladung / distance spindle to column	mm	270
max. Abstand Spindelspitze zu Arbeitstisch / max. distance spindle to table surface	mm	790
max. Abstand Spindelspitze zu Arbeitsfläche Fuß / max. distance spindle to working table base	mm	1260
Schwenkkopf-Rotation / swivel head rotation	°	-90 / +90
Spindeldrehzahl (6 Stufen) / milling spindle speed (6 steps)	U/min	95/ 170/ 280/ 540/ 960/ 1600
Bohrtischmaße L x B / table dimension L x W	mm	550 x 480
Säulendurchmesser / column diameter	mm	115
Arbeitsfläche Fuß / working table base	mm	390 x 320
Netto-Gewicht / net weight	kg	270
Brutto-Gewicht / gross weight	kg	305
Verpackungsmaße (LxBxH) / packaging dimension (LxWxH)	mm	740 x 640 x 1920
Maschinenmaße (LxBxH) / machine dimension (LxWx H)	mm	700 x 550 x 2050
Schalldruckpegel / sound pressure level L <sub>PA</sub>	dB(A)	85.... k = 3
Schallleistungspegel / sound power level L <sub>WA</sub>	dB(A)	95.... k = 3

**(DE)** Hinweis Geräuschangaben: Die angegebenen Werte sind Emissionswerte und müssen damit nicht zugleich auch sichere Arbeitsplatzwerte darstellen. Obwohl es eine Korrelation zwischen Emissions- und Immissionspegeln gibt, kann daraus nicht zuverlässig abgeleitet werden, ob zusätzliche Vorsichtsmaßnahmen notwendig sind oder nicht. Faktoren, welche den am Arbeitsplatz tatsächlich vorhandenen Immissionspegel beeinflussen, beinhalten die Eigenart des Arbeitsraumes und andere Geräuschquellen, d. h. die Zahl der Maschinen und anderer benachbarter Arbeitsvorgänge. Die zulässigen Arbeitsplatzwerte können ebenso von Land zu Land variieren. Diese Information soll jedoch den Anwender befähigen, eine bessere Abschätzung von Gefährdung und Risiko vorzunehmen.

**(EN)** Notice noise emission: The values given are emission values and therefore do not have to represent safe workplace values at the same time. Although there is a correlation between emission and immission levels, it cannot be reliably deduced whether additional precautions are necessary or not. Factors influencing the actual immission level at the workplace include the nature of the workspace and other noise sources, i.e. the number of machines and other adjacent operations. The permissible workplace values may also vary from country to country. However, this information should enable the user to make a better assessment of hazard and risk.

## 13 PREFACE (EN)

### Dear Customer!

This operating manual contains information and important notes for the safe start-up and handling of the gear driven drill machine with XL table ZS40HS, hereinafter referred to as "machine".



The manual is part of the machine and must not be removed. Keep it for later use in a suitable place, easily accessible to users (operators), protected from dust and moisture, and enclose it with the machine if it is passed on to third parties!

### Please pay special attention to the chapter Safety!

Due to the constant further development of our products, illustrations and contents may differ slightly. If you notice any errors, please inform us.

Technical changes reserved!

**Check the goods immediately after receipt and make a note of any complaints on the consignment note when the delivery person takes them over!**

**Transport damage must be reported separately to us within 24 hours.**

**HOLZMANN MASCHINEN cannot accept any liability for unnoticed transport damage.**

## Copyright

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The place of jurisdiction shall be the Regional Court of Linz or the court responsible for 4170 Haslach.

## Customer Service Address

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## 14 SAFETY

This section contains information and important notes on safe start up and handling of the machine.



For your own safety, please read these operating instructions carefully before start-up. This will enable you to handle the machine safely and prevent misunderstandings as well as personal injury and damage to property. Also observe the symbols and pictograms used on the machine as well as the safety and danger information!

### 14.1 Intended Use of the Machine

The machine is intended exclusively for the following activities: For drilling/tapping metal or materials with physical properties similar to metal, within the specified technical limits.

**HOLZMANN MASCHINEN assumes no responsibility or warranty for any other use or use beyond this and for any resulting damage to property or injury.**

#### 14.1.1 Technical Restrictions

The machine is intended for use under the following ambient conditions:

Rel. Humidity:	max. 80% (at 20° C)
	max. 50% (at 40° C)
Temperature (Operation)	+5° C to +40° C

#### 14.1.2 Prohibited Applications / Hazardous Misapplications

- Operating the machine without adequate physical and mental aptitude
- Operating the machine without knowledge of the operating instructions.
- Operating the machine outdoors.
- Operating the machine without sufficient oil/lubrication.
- Operating the machine in a working environment with gases, vapours etc. which could attack, corrode or destroy the insulation of the electronic components.
- Operating the machine in a working environment where vibrations occur regularly as they reduce the performance, accuracy and life of the machine.
- Operating the machine in a potentially explosive environment (machine may produce ignition sparks during operation).
- Machining flammable and explosive materials (e.g. pure aluminium, magnesium, etc.).
- Operating the machine outside the limits specified in these instructions.
- Remove the safety markings attached to the machine.
- Modify, bypass or disable the safety devices and safety devices of the machine.
- Changes to the design or electrical system of the machine.

The improper use or disregard of the instructions given in this manual will void all warranty and damage claims against Holzmann Maschinen GmbH.

### 14.2 User Requirements

The machine is designed for operation by one person. The physical and mental suitability as well as knowledge and understanding of the operating instructions are prerequisites for operating the machine. Persons who, because of their physical, sensory or mental abilities or their inexperience or ignorance, are unable to operate the machinery safely must not use it without the supervision or instruction of a responsible person.

**Please note that local laws and regulations may determine the minimum age of the operator and restrict the use of this machine!**



Put on your personal protective equipment before working on the machine.

**Work on electrical components or equipment may only be carried out by a qualified electrician or under the instruction and supervision of a qualified electrician.**



### 14.3 Safety Devices

The machine is equipped with the following safety devices:

	<ul style="list-style-type: none"> <li>• Self-locking EMERGENCY OFF button to stop dangerous movements of the horizontal spindle at any time (located on the control panel of the horizontal spindle).</li> </ul>
	<ul style="list-style-type: none"> <li>• Fold-out Drill Chuck PROTECTION, which covers the drill chuck used and the clamped tool in its rest position at the front and on both sides, and which prevents the machine from being put into operation when the protection is open.</li> </ul>

### 14.4 General Safety Information

To avoid malfunctions, damage and health hazards when working with the machine, in addition to the general rules for safe working, the following points must be observed:

- Before commissioning, check the machine for completeness and function. Only use the machine if the guards required for machining and other non-parting guards are fitted, in good operating condition and properly maintained.
- Choose a level, vibration-free, non-slip surface for the installation location.
- Ensure sufficient space around the machine!
- Ensure sufficient lighting conditions at the workplace to avoid stroboscopic effects.
- Ensure a clean working environment and keep the area around the machine free of obstacles (e.g. dust, chips, cut workpiece parts etc.).
- Only use perfect tools that are free of cracks and other defects (e.g. deformations).
- Sharpen/replace blunt/defective tool immediately.
- Remove tool keys and other adjustment tools from the machine before switching it on.
- Check the machine connections for strength before each use.
- Never leave the running machine unattended. Switch off the machine before leaving the working area and secure it against unintentional restarting.
- The machine may only be operated, serviced or repaired by persons who are familiar with it and who have been informed of the dangers arising during this work.
- Ensure that unauthorised persons maintain a safe distance from the machine and keep children away from the machine.
- When working on the machine, never wear loose jewellery, loose clothing, ties or long, open hair.
- Hide long hair under hair protection.
- Wear close-fitting protective clothing or suitable protective equipment (eye protection, dust mask, hearing protection).
- Metal dust can contain chemical substances that can have a negative effect on health. Only work on the machine in well-ventilated rooms and with a suitable dust mask! If there are connections for dust extraction, make sure that they are properly connected and in working order.
- Do not remove any sections or other parts of the workpiece from the cutting area while the machine is running!
- Always work with care and the necessary caution and never use excessive force.
- Do not overload the machine!
- Always shut down the machine and disconnect it from the power supply before carrying out any conversion, adjustment, measuring, cleaning, maintenance or repair work.
- Before starting any work on the machine, always wait until all tools or machine parts have come to a complete standstill and secure the machine against unintentional restarting.
- Do not work on the machine if it is tired, not concentrated or under the influence of medication, alcohol or drugs!
- Do not use the machine in areas where vapours from paints, solvents or flammable liquids represent a potential danger (danger of fire or explosion!).

### 14.5 Electrical Safety

- Make sure that the machine is earthed.
- Only use suitable extension cords.
- Proper plugs and sockets reduce the risk of electric shock.
- The machine may only be used in humid environments if the power source is protected by a residual current circuit breaker.



## 14.6 Special Safety Instructions for that machine

- Secure the workpiece to be machined against entrainment by the tool. Use a machine vice or clamping claws for clamping.
- Remove the clamping key from the chuck after each tool change.
- Do not wear gloves when working on rotating parts!
- Keep sufficient distance from all rotating parts.
- Never remove chips by hand! Use a chip hook, rubber wiper, hand brush or brush.
- When using cooling lubricants, observe the manufacturer's instructions and, if necessary, use a skin protection agent.

## 14.7 Hazard Warnings

Despite the intended use, certain residual risks remain. Due to the design and construction of the machine, hazardous situations may occur when handling the machines, which are identified in these operating instructions as follows:

### DANGER



A safety instruction designed in this way indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

### WARNING



Such a safety instruction indicates a potentially hazardous situation which, if not avoided, may result in serious injury or even death.

### CAUTION



A safety instruction designed in this way indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

### NOTE



A safety notice designed in this way indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Irrespective of all safety regulations, your common sense and appropriate technical suitability/training are and will remain the most important safety factor for error-free operation of the machine. **Safe working primarily depends on you!**

## 15 TRANSPORT

### WARNING



Damaged or insufficiently strong hoists and load slings can result in serious injury or even death. Before use, check hoists and load slings for sufficient load capacity and perfect condition. Secure the loads carefully. Never stand under suspended loads!

To ensure proper transport, also observe the instructions and information on the transport packaging regarding centre of gravity, attachment points, weight, means of transport to be used and the prescribed transport position, etc.

Transport the machine in its packaging to the installation site. To manoeuvre the machine in the packaging, a pallet truck or forklift truck with the appropriate lifting force can be used, for example.

**NOTICE:** In order to lift the machine from the pallet, you need a rope/hoists with sufficient load-bearing capacity.

1. Place the hoist/rope around the machine to prevent it from slipping.
2. Place soft, non-slip materials between the belt and the machine.
3. Align the belt lengths so that the machine is horizontal and stable when lifted.
4. Bring the worktable into centred position in the transverse axis.
5. Lock the machine completely.
6. The steel cables must not touch the machine body, lever, etc.
7. Gently lift the machine to avoid shocks and load fluctuations and carefully transport it to the installation site.

## 16 ASSEMBLY

### 16.1 Preparatory Activities

#### 16.1.1 Checking Delivery Content

After unpacking, check the machine immediately after receipt of the delivery for transport damage or missing or damaged parts. Always make a note of visible transport damage on the delivery note and immediately report any damage to the machine or missing parts to your dealer or freight forwarder.

#### 16.1.2 Selecting the Installation Location

##### NOTE



Inaccuracies in the levelling of the machine lead to uneven loading of the gearbox, spindle, ball bearing, etc. Negative effects on the service life of the machine are the result. Therefore, align the machine carefully. Once the machine has been fixed, the tolerance for skewness permitted for operation of the machine is 0.04/1000 mm, to be measured in the transverse and longitudinal directions.

The machine is heavy. Therefore, make sure that the floor at the installation location is straight and can carry the load of the machine.

The required depth depends on the hardness / consistency of the substrate – Note: less hard the substrate requires a greater anchoring depth.

The space required by the machine is determined by its dimensions plus a safety area of around 80 centimetres in all directions around the machine.

In addition, a power supply connection is required at the installation site!

#### 16.1.3 Preparation of Surfaces

##### NOTE



The use of paint thinners, petrol, aggressive chemicals or abrasives leads to material damage to the surfaces!

Before start-up, use a mild detergent to remove the preservative agent applied to the bare parts of the machine to protect them from corrosion.

### 16.2 Electrical Connection

##### WARNING



**Dangerous electrical voltage!** Connection of the machine as well as electrical inspections, maintenance and repairs may only be carried out by qualified personnel or under the supervision and supervision of a qualified electrician!

##### NOTE




Check the correct running direction of the spindles immediately after making the electrical connection! If necessary, you must replace two of the three phases (L1, L2, L3)!

The machine is operated with high voltage current (380 V, 3~, 50 ± 1 Hz). The use of 16 A fuses is recommended.

### 16.2.1 Establishing the High Voltage Current Connection

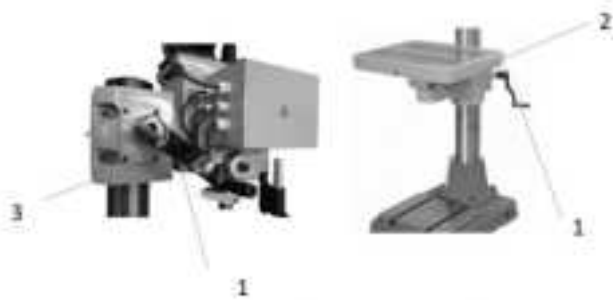
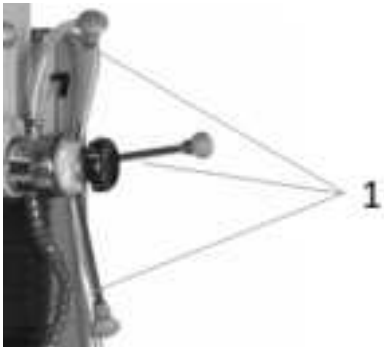

To connect the machine to the electrical mains, proceed as follows:


- Use a suitable device to check the functionality of the zero connection and earthing.
- Check that the supply voltage and current frequency correspond to the specifications on the machine nameplate.
- The power supply circuit must be equipped with overvoltage protection.
- For the required cross-section of the supply cables, please refer to the current carrying capacity table. (Make sure that the cables are in good condition and suitable for power transmission. Undersized cables reduce the power transmission and heat up considerably.)
- Connect the supply cables to the corresponding terminals in the input box (L1, L2, L3, N, PE) - see following figure. If there is a CEE plug, the connection to the mains is made by an appropriately supplied CEE coupling (L1, L2, L3, N, PE).

<b>Connected load 400V:</b>	5-wire: <b>with</b> N-conductor		4-wire: <b>without</b> N-conductor	
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### 16.3 Assembly the machine

The machine is delivered pre-assembled only the handwheels and crank handle removed for transport as well as the respective tool for the spindle have to be mounted.

	<ol style="list-style-type: none"> <li>1. Assembly crank handle Put one crank handle (1) onto the drill-head (3) other one on the table (2) and fix them with the grub screw.</li> </ol>
	<ol style="list-style-type: none"> <li>2. Assembly feed lever Tighten the three levers (1).</li> </ol>
	<ol style="list-style-type: none"> <li>3. Mounting/removing the drill chuck arbor. <ul style="list-style-type: none"> <li>• Degrease all parts.</li> <li>• Remove the protective cap (1) to gain access to the draw bar (2).</li> <li>• Insert drill chuck arbor (3) and fix it with the draw bar (2).</li> <li>• Place the drill chuck on the drill chuck arbor and fix it by means of a rubber hammer with a gentle punch.</li> </ul> </li> </ol>

	<p>4. Mounting/removing drills / morse taper:</p> <ul style="list-style-type: none"> <li>• Degrease all parts.</li> <li>• Use a rubber hammer to fix the drill/morse taper with a careful punch.</li> <li>• To remove the drill / Morse taper again, extend the spindle and turn it until you can attach the drill chuck drift.</li> </ul> <p>Remove the drill / Morse taper with a gentle punch.</p>
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## 17 OPERATION

### 17.1 Operating instructions

#### 17.1.1 Points to be observed



Before starting to work	After work have finished
Lubricate all lubrication points	Disconnect the machine from the power supply.
Remove unused tools / parts	Remove tools from the machine
Make sure that the vice and the workpiece are properly fastened.	Clean and lubricate the machine.
Check that the spindle speed has been selected correctly and that the maximum drilling/milling diameter is within the technical limits.	Cover the bare surfaces on the machine with a corrosion protection agent to avoid corrosion.
Make sure that there are no chips on the sliding surfaces.	

#### 17.1.2 Checking the screw connections

Before each start-up, check all screw connections and tighten them if necessary.

#### 17.1.3 Filling with lubricant and coolant

### NOTE

		<p>Lubricants and coolants are toxic and must not be released into the environment. Be careful when handling and do not spill anything! Follow the manufacturer's instructions and, if necessary, contact your local authority for information on proper disposal.</p>
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- Supply all relevant locations with gear oil VG220 (recommended for ISO 12925-1 CKD, DIN51517 Part 3 CLP, US Steel 224, AGMA 9005-E02).

#### Fill in Gear Box Oil



Remove screw (1). Fill with oil until the oil sight glass is filled to the middle. Machine head must be in vertical (0°) position. Reassemble screw (1).

Check oil level regularly and fill up gear oil if necessary!

## 17.2 Operating the Machine

### WARNING



**Danger due to electrical voltage!** Handling the machine with the power supply up can lead to serious injuries or even death. Always disconnect the machine from the power source before carrying out any adjustment or conversion work and secure it against unintentional restart!

### CAUTION



Before changing any tools, stop the spindle, wait for all machine parts to come to a standstill and secure the machine against unintentional restart..

#### 17.2.1 Starting the Machine



### NOTE



For the machine to be started, the EMERGENCY STOP switch (3) must be unlocked, the spindle protection must be closed and the direction of rotation (2) as well as the operation mode (4) must be selected!

To start the machine press the ON-button (1).

#### 17.2.2 Stopping the machine



Normal stop:

- Press the OFF-Button (5).

Only in emergency situation:

- By pressing the emergency stop button (3)

#### 17.2.3 Setting the Spindle Speed

### NOTE



Never change the speed until the motor/spindle has come to a complete standstill! Occasionally the engagement of the spindle is facilitated by briefly pressing the JOG button.



To set a specific speed, move the two levers to the position shown in the table.

Example 1: desired speed 95min-1  
 lever 1 to I and lever 2 to position L

Example 2: desired speed 1600min-1  
 lever 1 to II and lever 2 to position H.

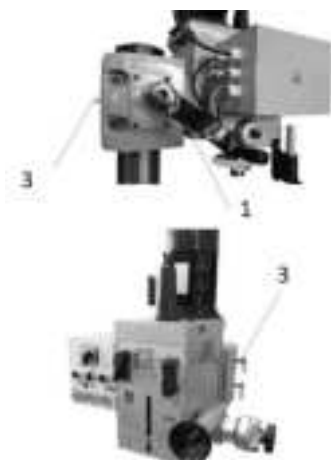
#### 17.2.4 Setting table height and angular position



You can adjust the height and angular position of the worktable.

- To position, loosen the clamping screws (2) with a fork wrench and adjust the height with the crank handle (1) and the angular position by turning the worktable.
- After the desired height position and angular position have been set, retighten the clamping screws (2) using a fork wrench.

#### 17.2.5 Setting the height position of machinehead/spindle



The required height position of the machine head relative to the worktable can be adjusted by means of a hand crank.

- 1 Loosen the two fixing levers (3).
2. move the machine head to the desired height position by means of the hand crank (1)
3. Turn the two fixing levers (3) firmly again to fix the position.

### 17.2.6 Setting the angular position of machinehead / spindle



The machine head (1) can be swivelled within the technical specifications.

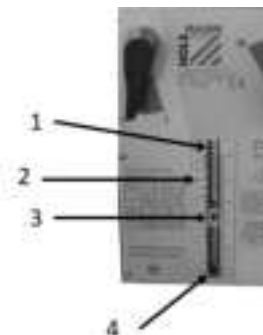
To do this, loosen the 3 screws (1..left, 2..middle, 3 right of the head) and swivel the machine head to the desired angular position, which is indicated on the scale (5). Then tighten the 3 screws again.

### 17.2.7 Setting the spindle lift



The spindle lift can be moved downwards/up by turning the lever (3). The hand screw (2) is tightened for fine adjustment and the lift can now be finely adjusted to the desired height using the hand wheel (1).

### 17.2.8 Setting tapping-depth / scale



In tapping mode, the two limit switches (1 and 4) are active. When the drilling depth pointer (3) contacts the lower limit switch (4), the direction of rotation is reversed (tap moves up). When contact is made with the upper limit switch (1), the direction is reversed again and spindle rotation remains still as long as the switch is actuated.

The drilling depth pointer (2) can be set within the drilling depth scale and thus the depth to be drilled can be pre-adjusted.

## 18 CLEANING & MAINTENANCE

### WARNING



**Danger due to electrical voltage!** Handling the machine with the power supply up can lead to serious injuries or death. Before cleaning and maintenance work, always disconnect the machine from the power supply and secure it against unintentional restarting!

### 18.1 Cleaning

### NOTE



Do not use solvents, nitro thinners or other cleaning agents that could damage the machine's paintwork. Observe the information and instructions of the cleaning agent manufacturer!



Prepare the surfaces and lubricate the bare machine parts with an acid-free lubricating oil. Regular cleaning is a prerequisite for the safe operation of the machine and its long service life. Therefore, clean the device after each use of chips and drilling dust.

## 18.2 Maintenance

The machine is low-maintenance and only a few parts have to be serviced. Nevertheless, malfunctions or defects which could impair the safety of the user must be rectified immediately!

- Before each start-up, make sure that the safety devices are in perfect condition and function properly.
- Check all connections for tightness at least once a week.
- Regularly check that the warning and safety labels on the machine are in perfect and legible condition.

### 18.2.1 Exchange gear box oil

#### NOTE



Lubricants and coolants are toxic and must not be released into the environment. Be careful when handling and do not spill anything! Follow the manufacturer's instructions and, if necessary, contact your local authority for information on proper disposal.



To drain the gear oil, loosen the screw (1).  
(Located on the underside of the gear head).  
Set up oil tray see note to properly catch oil.  
After gear oil has been completely drained. Close drain plug (1) again and fill with new gear oil.

### 18.2.2 Inspection and Maintenance Plan

The type and degree of machine wear depends to a large extent on the operating conditions. The following intervals apply when the machine is used within the specified limits:

Interval	Component	Activity
Before usage	Gear box oil level	check and refill if necessary
	Cable and plug	Check for damage and replace if necessary
weekly	Screw connections	check for tightness
	Moving parts	lubricate
	spindle	lubricate with gear grease
Half a year	Gear box oil	Exchange gear box oil
annually	Cross table	check parallelism

## 19 STORAGE

#### NOTE



Improper storage can damage and destroy important components. Only store packed or unpacked parts under the intended ambient conditions!

In case of a prolonged interruption of operation or shutdown, clean the machine, empty the coolant container by draining the coolant into a collection container and then store the machine out of the reach of children in a dry place protected from frost and other weather influences!

## 20 DISPOSAL



Observe the national waste disposal regulations. Never dispose of the machine, machine components or equipment in residual waste. If necessary, contact your local authorities for information on the disposal options available.

If you buy a new machine or an equivalent device from your specialist dealer, he is obliged in certain countries to dispose of your old machine properly.

## 21 TROUBLESHOOTING

### WARNING



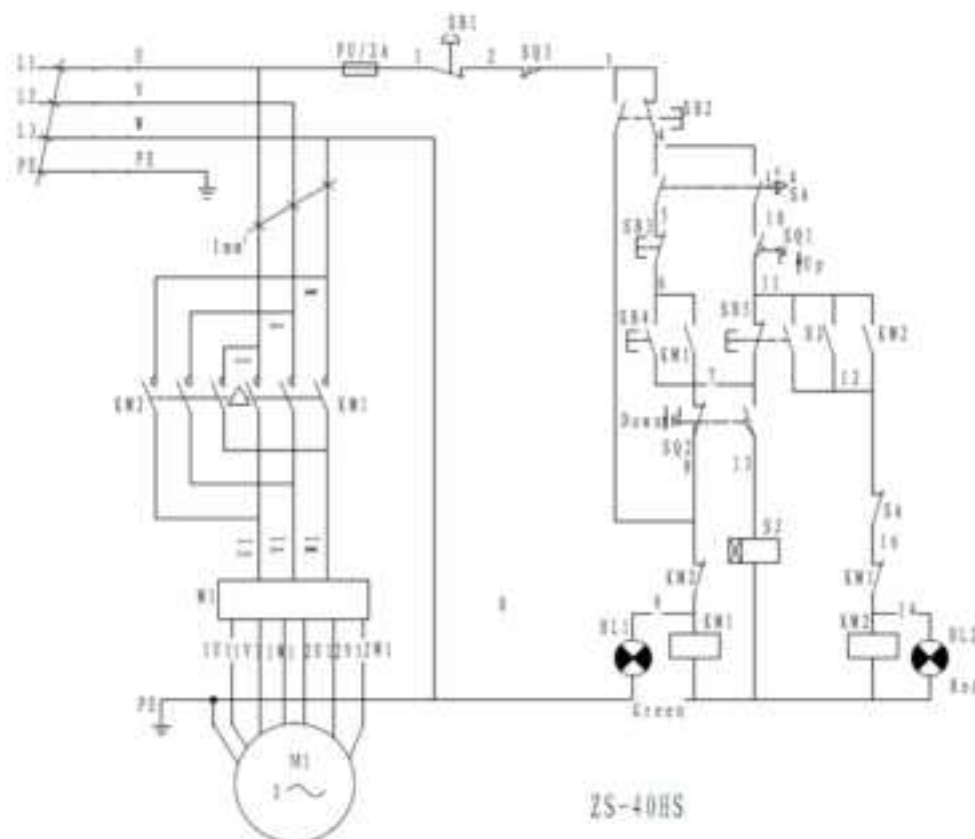
**Danger due to electrical voltage!** Manipulating the machine with the power supply up can lead to serious injuries or death. Always disconnect the machine from the power supply before carrying out any troubleshooting work!

Many possible sources of error can be excluded in advance if the machine is properly connected to the mains.

If you are unable to carry out necessary repairs properly and/or do not have the required training, always consult a specialist to correct/solve the problem!

Fault	Possible cause	Remedy
<b>Spindle does not rotate Motor does not run</b>	Incorrect mains connection	Have checked by a specialist
	Switch damaged	Check/repair the switch
	Motor damaged	Check/repair the motor
<b>Incorrect rotation</b>	Switch knob indicates wrong direction	Change to correct position
<b>Spindle does not reach speed</b>	Extension cable too long	Exchange extension cable
	Motor not suitable for existing voltage	see switch box cover for correct wiring
	Problems with mains	Contact the electrical specialist
<b>Maschine vibriert stark</b>	Stands on uneven ground	Realign
	Motor fastening is loose	Tighten the screws.

## 22 ELEKTRISCHER SCHALTPLAN / WIRING DIAGRAM



## 23 ERSATZTEILE / SPARE PARTS

### 23.1 Ersatzteilbestellung / Spare Parts Order

**(DE)** Mit Holzmann-Ersatzteilen verwenden Sie Ersatzteile, die ideal aufeinander abgestimmt sind. Die optimale Passgenauigkeit der Teile verkürzt die Einbauzeit und verlängert die Lebensdauer der Maschine.

### HINWEIS

**Der Einbau von anderen als Originalersatzteilen führt zum Verlust der Garantie!**

Daher gilt: Beim Tausch von Komponenten/Teilen nur Originalersatzteile verwenden

Beim Bestellen von Ersatzteilen verwenden Sie bitte das Serviceformular, das Sie am Ende dieser Anleitung finden. Geben Sie stets Maschinentype, Ersatzteilnummer sowie Bezeichnung an. Um Missverständnissen vorzubeugen, empfehlen wir mit der Ersatzteilbestellung eine Kopie der Ersatzteilzeichnung beizulegen, auf der die benötigten Ersatzteile eindeutig markiert sind.

[Bestelladresse](#) sehen Sie unter [Kundendienstadressen](#) im Vorwort dieser Dokumentation.

**(EN)** With original Holzmann spare parts you use parts that are attuned to each other shorten the installation time and elongate your products lifespan.

### IMPORTANT

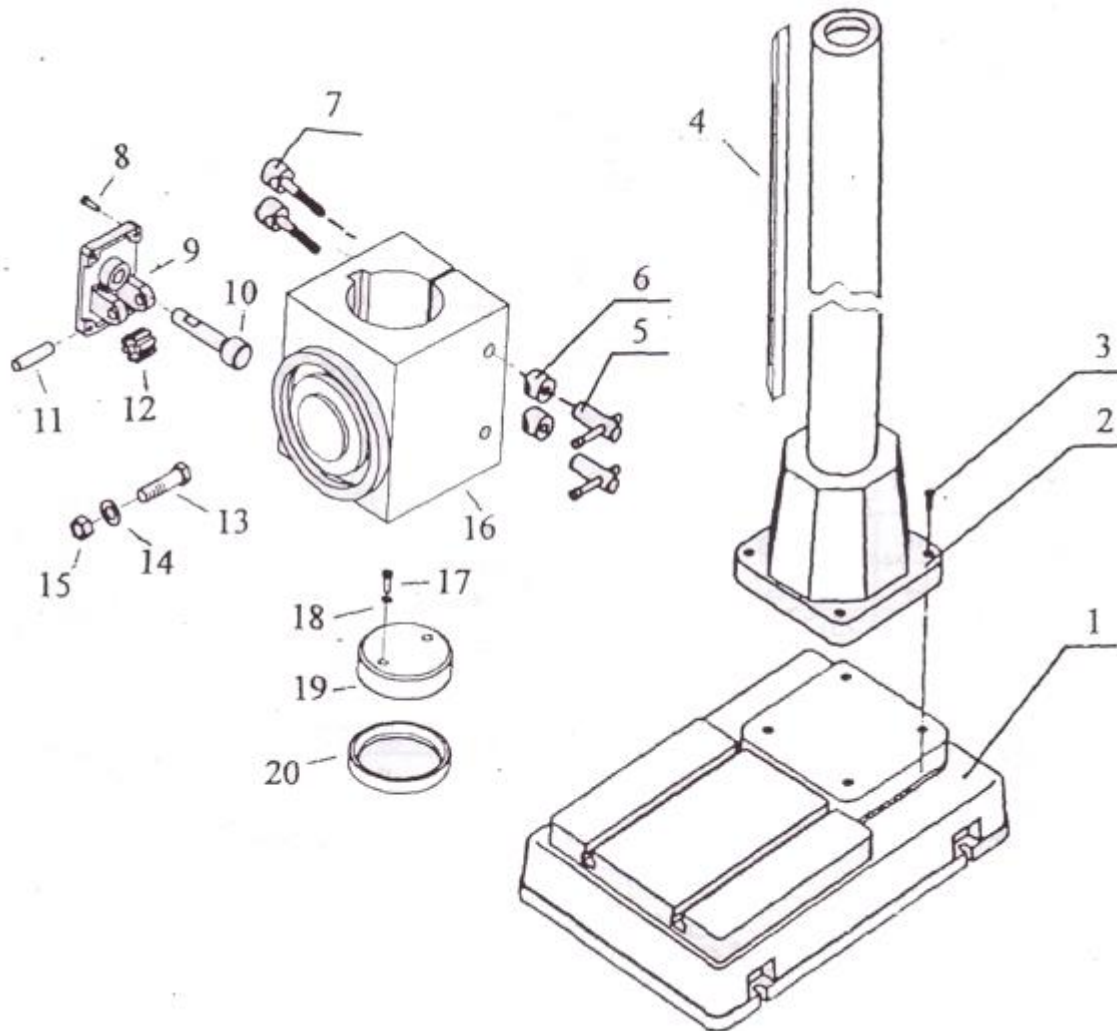
**The installation of other than original spare parts voids the warranty!**

So you always have to use original spare parts

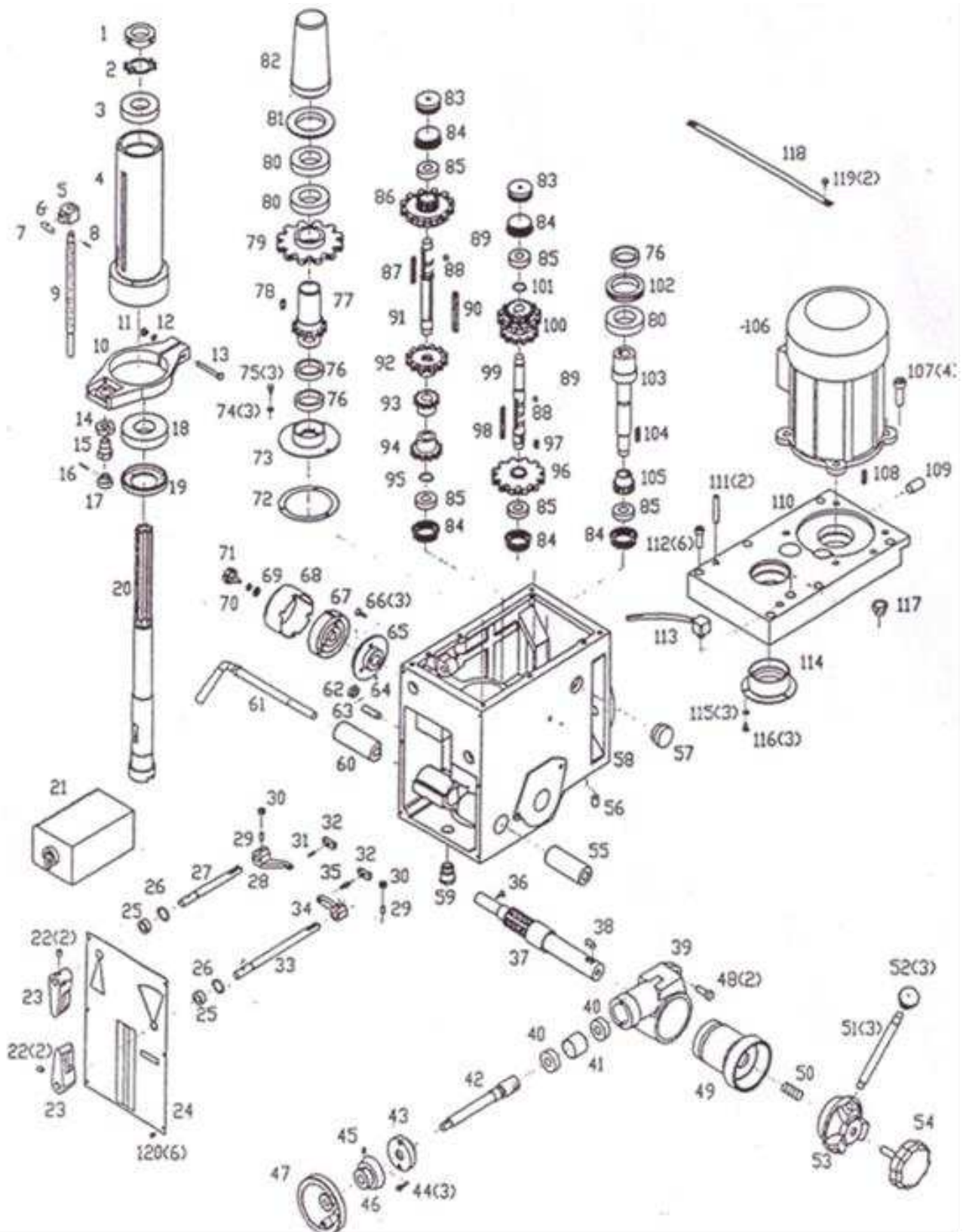
When you place a spare parts order please use the service formular you can find in the last chapter of this manual. Always take a note of the machine type, spare parts number and partname. We recommend to copy the spare parts diagram and mark the spare part you need.

[You find the order address in the preface of this operation manual.](#)

## 23.2 Explosionszeichnungen / Exploded views



No.	NAME	No.	NAME	No.	NAME
1	Base	2	Column	3	Bolt
4	Rack	5	Clamp handle	6	Movement clamp block
7	Peg clamp block	8	Bolt	9	Support
10	Worm	11	Axis	12	Gear
13	Bolt	14	Gasket	15	Nut
16	Bolt	17	Gasket	18	Column cover
19	Rack hoop				



No.	NAME	No.	NAME	No.	NAME	No	NAME
1	Nut	2	Lock washer	3	bearing	4	Quill
5	Baffle piece	6	Indicator	7	Screw	8	Pin
9	Adjusting rod	10	Feeding seat	11	Nut	12	Washer
13	Belt	14	Nut	15	Set	16	Pin
17	Handle	18	Bearing	19	Bearing cover	20	Spindle
21	Switch box	22	Screw	23	Adjusting speed handle	24	Name plate
25	Oil cover	26	Cirelip	27	Axis	28	Nut
29	Screw	30	Nut	31	Pin	32	Block
33	Axis	34	Fork	35	Pin	36	Screw
37	Pinion shaft	38	Key	39	Bearing	40	Bearing
41	Ring	42	Feeding worm	43	Cover	44	Screw
45	Screw	46	Depth stop collar	47	Handle wheel	48	Screw
49	Worm	50	Spring	51	Handle seat	52	Feed handle
53	Knob	54	Handle wheel	55	Block	56	Qil plug
57	Oil level pointer	58	Head	59	Fixation nut	60	Block
61	Clamp handle	62	Nut	63	Screw	64	Pin
65	Set	66	Screw	67	Quill spring	68	Spring cap
69	Washer	70	Washer	71	Handle wheel	72	Mat
73	Seat	74	Washer	75	Screw	76	Oil cover
77	Gear	78	Key	79	Gear	80	Bearing
81	Seat	82	Cover	83	Cover	84	Bearing seat
85	Bearing	86	Gear	87	Key	88	Steel ball
89	Spring	90	Key	91	III Axis	92	Gear
93	Gear	94	Key	95	Circlip	96	Gear
97	Key	98	Key	99	II Axis	100	Gear
101	Circlip	102	Space	103	Axis	104	Key
105	Gear	106	Motor	107	Screw	108	Key
109	Screw	110	Cover	111	Pin	112	Screw
113	Tie-in	114	Seat	115	Washer	116	Bolt
117	cover	118	plate	119	screw	120	Screw