

Hydraulic Magnetic Core Drill

Type 2 1345 0010

Tech. Doc. No. 261



Illustration can differ from the original

Operation and Maintenance Manual

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Signal Word and Symbol Definition

The signal words and symbols used in the technical documentation (safety instructions, operating booklet, etc.) have the following meaning:



WARNING – Read the operation instruction

Before operating your SPITZNAS-machine, make sure that you are familiar with this operating instruction and its safety instructions.
Ensure that the operation process is adhered to and avoid accidents due to improper use of the machine.



This symbol has the following meaning:

DANGER

Indicates an **immediate danger**, which causes serious injuries to any person or even death, if not avoided.

WARNING

Indicates a **threatening danger**, which can cause serious injuries to any person or even death, if not avoided.

CAUTION

Indicates a **danger or unsafe procedure** which can cause injuries to any person or material damages, if not avoided.

NOTICE

Indicates a **potentially dangerous situation** which can cause damage to the product or its surroundings, if not avoided.



WARNING – hand injuries

Danger of injuries in areas where this warning sign is mounted.



WARNING – magnetic field

Magnetic fields can become hazardous for persons with metal parts, respectively implants.



WARNING – hot surface

Risk of burns when touching surfaces where this warning sign is mounted.



WARNING – explosive atmosphere

Air and flammable substances can mix and result in an explosive atmosphere. In areas exposed to explosion hazards, supplementary instructions and directives apply. Observe the safety instructions of the employer as well.



WARNING – explosive material

Caution should be exercised when working with explosive material or in its surrounding area.



PROHIBITION – No naked flame, fire, or ignition source and no smoking

Prevent from fire and explosion hazards, which can be caused by naked flame, open ignition source or by smoking.



Eating and drinking forbidden – The prohibition sign forbids the consumption of food.



This symbol has the following meaning:


NOTICE – Gives recommendations and important hints for handling the product

IMPORTANT – Indicates application advice and other particularly useful information.

REMARK:

In each case the symbol used does not replace the safety text. The text must always be read fully. In some cases other symbols will be used with the signal words.

Technical Specification

Dimensions	392 x 198 x 547-724 mm	15.433 x 7.795 x 21.535-28.504 inch
Magnet size	300x100 mm	11.811 x 3.937 inch
Weight without hydraulic hose set	22.5 kg	50 lbs
Oil connection	SAE PORT No. 8 (3/4 x 16 UNF – 2 B)	
Oil connection quick coupling	Flat-Star A250-OM/OF-1/2"BSP	
Hose ID	Ø12 mm	½" dia.
Operating pressure	140-180 bar	2000-2600 psi
Flow	20-23 l/min	5.3-6 gpm
Power	2.5 kW	3.4 hp
Stroke	300 mm	11.811 inch
Tool holder	MK3	MT3
Magnet force at 10 mm/ 0.4" inch	850 kg	1874 lbs
Cutter	Ø12 - Ø 100 mm	½" – 4" inches dia.
Drill	max. Ø 31.75 mm	max. 1.25" inch dia.
Tap	max. M30	
Reamer	max. Ø 31 mm	max. 1.22 inch dia.
Spot facer	max. Ø 50 mm	max. 2" inch dia.
Rotating speed continuously variable	40-250 1/min	40-250 rpm
Rotating direction	reversible	
Cooling water connection	R1/4"	
Noise pressure level L_{pA} ⁽¹⁾	79.8 dB (A)	
Noise power level L_{WA}	91.0 dB (A)	
Vibration ⁽²⁾	< 2.5 m/s ²	
ATEX Classification	 II 2G c IIB T5	
⁽¹⁾ Remark: Measurement acc. to DIN EN ISO 15744	⁽¹⁾ Measurement uncertainty K: 3 dB (A)	
⁽²⁾ Remark: Measurement acc. to DIN EN ISO 28927-5	⁽²⁾ Measurement uncertainty K: 1.5 m/s ²	

The performance data are guide values only, they depend basically on the application, the operating pressure and the applied accessories.

Intended Use

SPITZNAS machines are designed for commercial/industrial use only.

Only trained, skilled personnel are allowed to operate the machine.

This machine is designed only for drilling in magnetic and non-magnetic metal, as well as for thread cutting, countersinking and reaming according to the range given in the technical specification above.

Improper Use

Any use deviating from the intended use as described is considered to be improper use.

- Working without personal protection equipment.
- Using the machine in a kind of area which is prohibited for the machine.
- Drilling self-flammable material.

Product Description

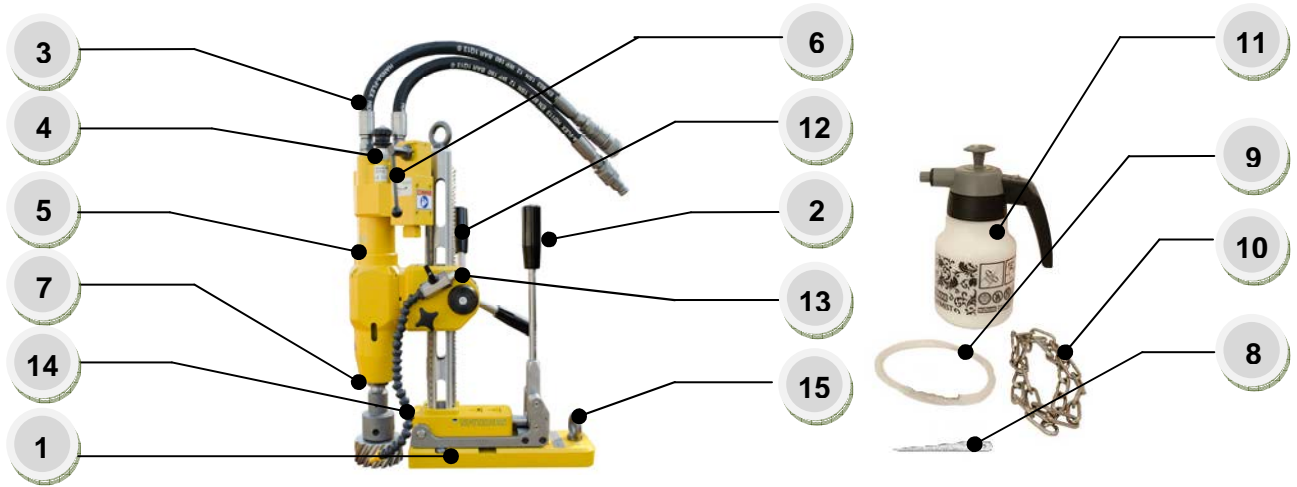


Fig. 1

- | | | |
|-------------------------------------|--------------------------------|---|
| 1 Magnet drill rig | 7 Tool holder MK3 | 12 Feeding bar |
| 2 Control lever - magnet | 8 Drift key | 13 Plug nipple for cooling lubricant hose |
| 3 Hydraulic connection | 9 Cooling lubricant hose | 14 Cooling lubricant connection |
| 4 Throttle valve | 10 Safety chain with snap hook | 15 Ring bolt |
| 5 Hydraulic motor | 11 Cooling bottle | |
| 6 Control lever- rotation direction | | |

Identification

Type sign

Explanation of ATEX Identification

CE specification

Technical data

Identification of the internal technical ATEX documentation number

Serial number (1. u. 2. figure refer to the year of manufacture/ following figures refer to the series)

Type description

Company name and address

Category 2 (usable in category 3 too)

Explosion group IIB
usable in explosion group IIA too.

Specification for prevention from explosion (ATEX)

Machine group II
Explosion hazard areas e.g. industry

Category 2
Very high level of safety
High level of safety
Normal level of safety

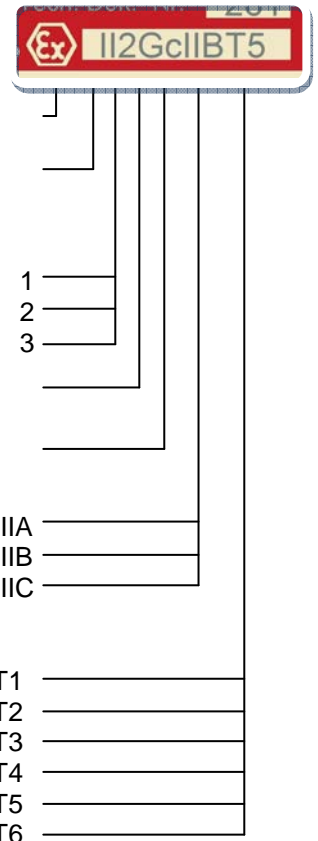
Ex atmosphere G
Gas, vapor and mist

Explosion protection c
Constructional safety

Explosion group IIB
e.g. methane, propane
e.g. ethylene, town gas
e.g. hydrogen, acetylene

Temperature class T
Surface temperature limit

450°C
300°C
200°C
135°C
100°C
85°C



Installation

Requirements to the hydraulic system

The following is required for an optimum performance of the hydraulic magnetic core drill:

- Provide a volume flow of max. 23 l/min at an operating pressure of 140 to 180 bar,
- the system should not have more than 17 bar back pressure,
- the hydraulic system should have sufficient heat rejection capacity to limit the maximum oil temperature to 60 °C at the maximum expected ambient temperature.

It is recommended:

- That the filter elements are sized for a volume flow of at least 114 lpm for cold temperature startup and for maximum dirt holding capacity,
- that the hydraulic system should have a minimum of 10 to 25 micron of full-flow filtration.

Connecting the hydraulic magnetic core drill

The machine is designed for an open circuit.

Check:

- The circuit type (open circuit or closed circuit), before connecting the machine,
- that all hose couplings are clean, before connecting the hoses,
- that there are no signs of leakage,
- that the machine is clean and dry,
- that all assembly parts and fixing elements are firmly fixed, respectively tight.

The recommended hose size is from 12 mm to 16 mm for the inner diameter and between 15 and 30 m for the length. Always connect the return hose first and disconnect it at last (see fig. 2).

P (Pump connection) = Supply

T (Tank connection) = Return flow

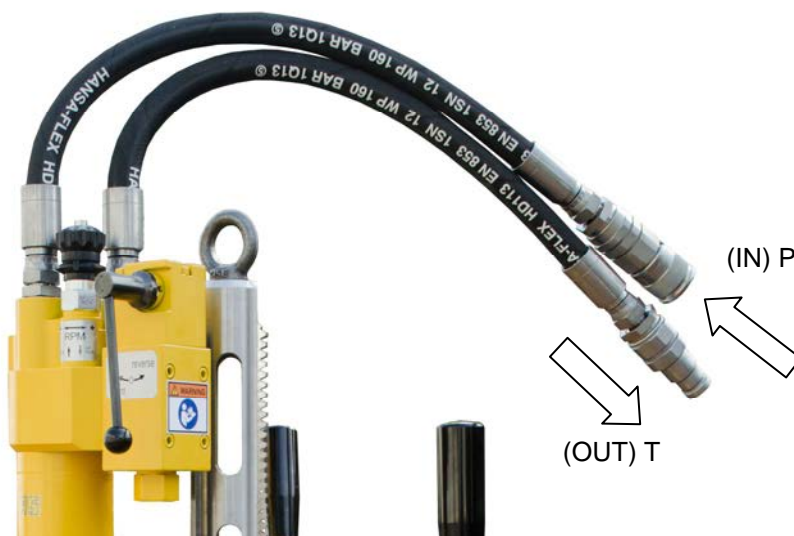


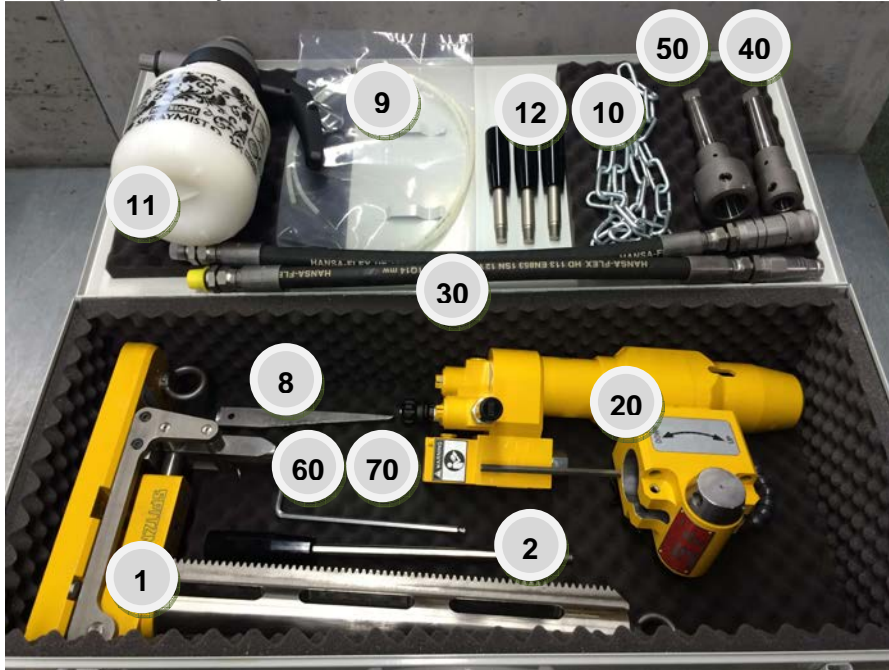
Fig. 2

Startup

Before using the machine, please read these instructions.

Check the scope of delivery.

Scope of delivery:



- 1 Magnet drill rig
- 2 Control lever - magnet
- 8 Drift key
- 9 Cooling lubricant hose
- 10 Safety chain with snap hook
- 11 Cooling bottle
- 12 Feeding bars
- 20 Drive unit
- 30 Hydraulic hose set
- 40 Industry tool holder MK3 Weldon 19 mm
- 50 Industry tool holder MK3 Weldon 32 mm
- 60 Hexagonal screw driver SW5
- 70 Hexagonal screw driver SW6
- Operation and maintenance manual

Preparation for the operating procedure



Fig. 4. 1



Fig. 4. 2



Fig. 4. 3

1. Take the magnet drill rig 1 out of the transport case.

Clean the surface of the magnet and the work piece from dirt and chips. For this, wearing protective gloves is imperative. Put the magnet drill rig on the work piece (see fig. 4. 1). Mount the control lever (see fig. 4. 2). Secure the magnet drill rig (see fig. 4. 3).

2. Put the drive on the pillar of the magnet drill rig (see fig. 4. 4). Mount the feeding bars 12 (see fig. 4. 5). Turn the feed into the direction „down“ until the locking pin snaps into place. Pulling the locking pin and turning the feed again allows going beyond the lock (see fig. 4. 6).



Fig. 4. 4



Fig. 4. 5

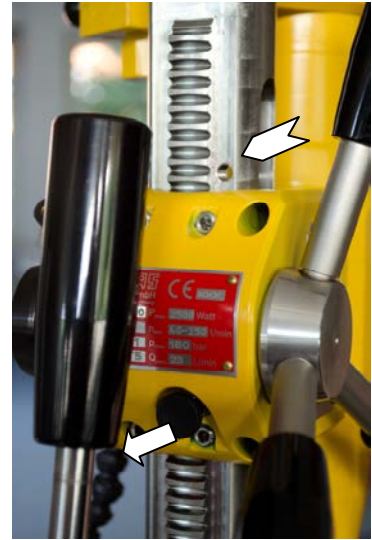


Fig. 4. 6

3. Mounting the pilot

The pilot locates the cutter and ejects the trepanned plug after finishing the drill work. Due to the flat head the cooling lubricant can get into the center of the cutter.

Drive the pilot into the center hole of the cutter shaft (see fig. 5. 1 and 5. 2).



Fig. 5. 1



Fig. 5. 2

4. Mounting the cutter and other tools

Unscrew both screws until the shaft of the cutter can be inserted. In doing so, both faces at the cutter shaft have to overlap with the fixing screws. Tighten the adjusting screws until the drill rig is firmly clamped (see fig. 6). Do not overwind the screws.

If a pilot is used, easy sliding of the pilot in the cutter must be possible.



Fig. 6



Fig. 6.1

5. Mark the drill position with a powerful center punch. Then place the unit into the correct drill position. The magnet will hold on all ferrous surfaces with a material thickness of 10 mm or more.

6. Attach the safety chain 9 by looping it over the magnet of the unit and around the work piece or any other suitable anchor point. Take up any slack in the chain and clip the hook through a convenient link in the free end of the chain (see fig. 7).



Fig. 7

7. Check, if the machine is properly connected to an appropriate hydraulic supply.
8. Use an ejector pin when working with core drills.

- 9. When thread cutting, pay attention that the speed is not too high and that the feed must be performed manually.
- 10. The speed is adjusted by the throttle valve. The ring item 1 is set in position (unlock) and the adjusting wheel item 2 is screwed (-) or unscrewed (+) (see fig. 8).

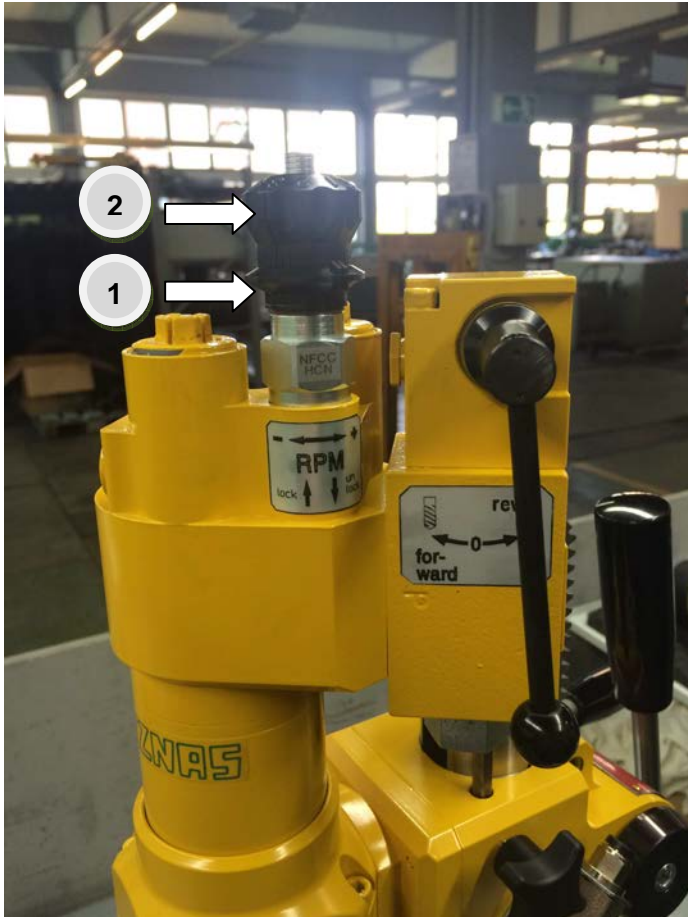


Fig. 8

- 11. Connect the free end of the cooling lubricant hose 9 of the pressure bottle into the plug nipple of the motor (see fig. 9.1 and 9.2).



Fig. 9.1



Fig. 9.2

Start operation

1. Activate the magnet by switching the control lever 2 (see fig. 10).



Fig. 10

2. Check, that the magnet is fixed. It may happen, that the machine is slightly displaced due to energizing the magnet. Reposition, if necessary.
3. Activate the cooling lubrication (see fig. 11.1 and 11.2).

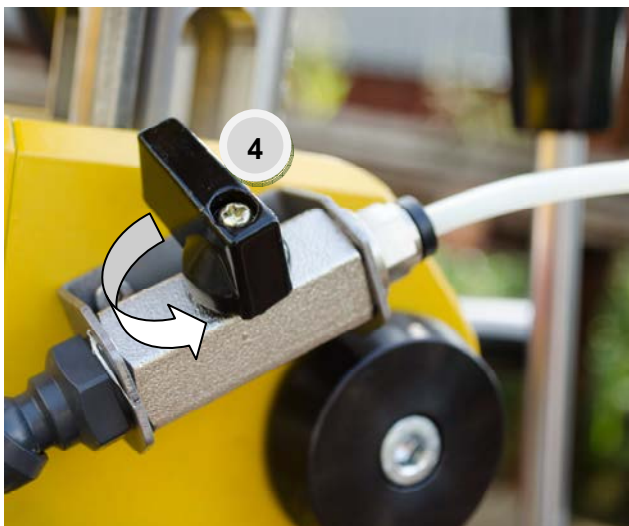


Fig. 11. 1

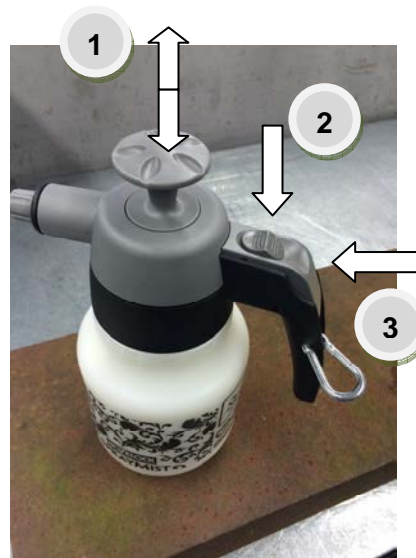


Fig. 11. 2

4. Turn the control lever 6 to position "forward".
Adjust the speed to the working process by the throttle valve (see fig. 8).



Fig. 12.

5. Advance the cutter slowly to the work piece until it enters the surface, then increase the cutting pressure and keep it constant until the cut is finished. Too much cutting pressure will not speed up the cut, it will reduce the lifetime of the tools. If the turnings become blue, add more cooling lubricant. At the end of the cut the trepanned plug should be ejected from the cutter by spring tension. Ensure this before starting the next hole.
6. Stop the motor only when the cutter has completely penetrated the work piece. For this, put the lever in position (0) (see fig. 13).



Fig. 13

Stop operation

Switch off the motor (see fig. 13).

1. Switch off cooling (see fig. 14.1 and 14.2).



Fig. 14. 1



Fig. 14. 2

2. Take out the holder, respectively the tool (see fig. 15).

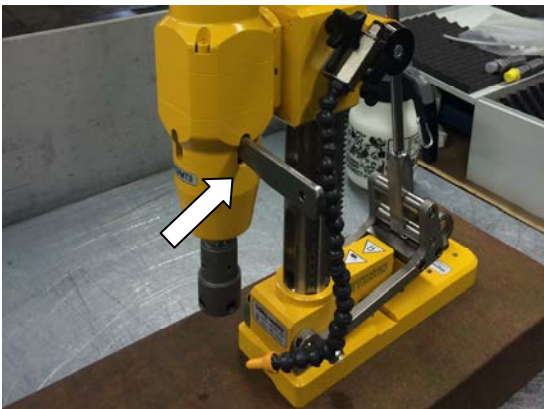


Fig. 15

3. Take the drive from the magnet drill rig.
Turn the feed in direction "UP" until the locking pin snaps into place. Pull the locking pin and turn the feed again, until you can pull the drive completely from the magnet drill rig (see fig. 16).



Fig. 16

4. Remove safety chain (see fig. 17).



Fig. 17

5. Actuate the control lever for switching off the magnet. (see fig. 18).



Fig. 18

6. Loosen the drill rig. Tip the drill rig sideways from the work piece (partial magnetic).

Basic Safety Instructions



Read operation instructions/safety instructions!

Before working on or with the tool, read the safety instructions and follow the instructions during operation.

Do not modify the machine or the machine tools and accessories after receipt. Any constructive changes or modifications need the manufacturer's acceptance and have to be in compliance with the safety instructions. Use the machine only for its determination. Consider the technical data of the equipment and the ambient temperatures. Pay attention to labels, restrictions of use and special instruction notes on the machine tools and the machine itself. Check regularly that the type plate and symbols on the machine are legible. If necessary, contact the manufacturer to replace them. Only operators with technical knowledge, trained by authorized responsible technical personnel, may install, adjust, operate, transport and store the machine.

Employer's Obligations

Generally, the employer is responsible for the faultless condition/operation of the machine and the adherence to the safety regulations. The machine is designed and manufactured according to the technical safety regulations. However, using it, there is still a risk of accidents to the operator or third parties or damage to the machine or other objects. All current regulations and specifications, which apply to the site of operation in regards to accident prevention, installation of electrical and mechanical systems as well as radio interference must be considered.



IMPORTANT - The employer must make sure that...

- Risk assessment is carried out for the specific risks, which can occur due to any operation of the machine
- the function of the safety equipment is regularly checked,
- the safety symbols and safety notes on the machine/ device and the operating instruction booklet are considered,
- the safety instructions and the operating instruction booklet are available completely and in legible condition on site with the machine.

The employer is obliged to allow personnel to work on the machine only, who:

- Are familiar with the basic work environment safety rules and accident preventing regulations. Also, those persons must have been instructed in the correct use of the machine,
- have read and understood the safety and warning notes in the operating instruction booklet as well as all the other documentation pertaining to the machine,
- have been tested at regular intervals in regards to their safety-conscious operation.

Safety-conscious working

Additionally to the safety instructions in this manual and the intended use, the following safety regulations have to be considered:

- Accident prevention instructions, safety and operation regulations,
- explosion protection directives,
- safety regulations for the operation with hazardous material,
- effective norms and laws.

Operator's Obligations

All persons who are assigned to work with the machine are obligated to:

- Pay always attention to the basic safety and accident preventing regulations,
- read always and follow the safety and warning notes in the operating instruction booklet.

Explanation of Symbols for Protective Equipment and for Accident Prevention



Use protective clothes – Protective clothes are necessary for diverse applications, e.g. protection against chemicals, heat and cold. Provide appropriate protective clothes to your staff and identify this requirement by convincing signage.



Use head protection – Keep staff and visitors from head injury. Provide enough safety helmets and identify the obligation for using safety helmets by appropriate mandatory signs.



Use eye protection – whether goggles, laser safety goggles or etc. – identify areas where eye protection has to be used, by appropriate mandatory signs.



Use ear protection – Capsule hearing protectors or hearing protectors have to be used for ear protection, depending on the sound intensity at the work place. Provide appropriate ear protection and identify the obligation for using ear protection by appropriate mandatory signs.



Use foot protection – Foot injury by vehicles, objects, hot material or hazardous substances can be avoided by appropriate protective shoes. Equip your staff with appropriate protective shoes and identify those requirements properly.



Use hand protection – Identify convincingly the safety requirement „Use hand protection“ by a gloves sign, respectively a gloves symbol.



Use respiratory protection – Ensure that the specified protection equipment is available and that it is used. Identify by mandatory signs, where and when respiratory masks are required.

Danger Zones

Operational condition ----- Life phase	Normal function	Malfunction	Improper use	Expected use
Transport	Transport of the machine in an inoperable condition	Drop of the machine	Transport of the machine in an operable condition	unknown
Startup	Equipment of the machine with designated cutting tool	unknown	Equipment of the machine with other tools	unknown
Operation	Machine works only with actuated valve	Machine runs without intended actuation	Valve is blocked in actuated condition	unknown
	Machine moves the tool	Machine blocks	unknown	unknown
Maintenance	Regular cleaning	Breakdown of the machine	unknown	unknown

Hazard notes regarding the hydraulic power pack: refer to the manufacturer

Safety Instructions for Prevention of Workplace Hazards



WARNING – The following applies unless otherwise stated in the machine's operating instructions booklet: The machine is not insulated to protect against an electrical power surge.



CAUTION – risk of injury!
Hands may be crushed, seized or otherwise injured.
Keep your hands away from areas which are marked with this symbol.



CAUTION – risk of injury!
Remove all sources of danger which could lead to slipping, tripping or falling (e.g. slippery surface, hoses, cables).
Keep the work area clean and tidy.



PROHIBITION – Eating, drinking and smoking are forbidden during operation.



WARNING – Explosion hazard!

Operate the machine only according to the intended use.
The machine is designed for the use in areas exposed to explosion hazards as well.
The generation of heat and –eventually- sparks is characteristic for drilling certain material.
Therefore cool continuously.
Observe the following:

- Valid local explosion protection directives.
- Technical specification of the machine.
- Markings on the machine.
- Avoid the generation of sparks.
- When operating the machine, do not push or beat against other material and hold the machine firmly and safely by hand.
- Do not slide the machine over the ground.
- If heat generation exceeds the specified surface temperature, the machine has to be stopped instantly. It may be re-started only after having eliminated the cause for the fault.
- The work area and the other close working areas should always be protected from sparks.
- Flammable and explosible material has to be removed from the work area before starting work. Among others, this relates to dust deposits, cardboard, packing material, textile, wood and wooden splints, but also flammable fluids and gas.



Ensure adequate lighting.

Be extra careful in unfamiliar surroundings. There is a risk of hidden hazards such as electric lines or other supply lines. Make sure when operating the machine that no electrical cables, gas pipes or similar could be damaged. Use suitable and personal protective equipment.

Safety Instructions for Prevention of Hazards caused by Hydraulic



WARNING – Hydraulic can cause severe injury. Before working on the tools (e.g. installation, changing accessories or machine tools, prior to a long standstill, maintenance, etc.) depressurize hydraulic equipment.

CAUTION – Risk of injury by whipping hydraulic hose.
Check hydraulic hoses, connection components and fittings regularly for any damages and proper fixture.

When connecting / disconnecting the machine to / from the hydraulic supply, please pay careful attention not to actuate the valve while doing so. Never remove a pressurized hydraulic hose. Always switch the power supply off first and then depressurize the machine.

The maximum operating pressure according to the technical specification must not be exceeded. A pressure regulator should be installed, which regulates the pressure before it reaches the machine. Never direct a hydraulic hose at yourself or anyone else. Do not carry or pull the machine at the hydraulic hose.

Safety Instructions for Prevention of Operating Hazards

Before starting work make sure that the hands are protected against: impacts, crushing, hits, cuts, abrasions and heat. The operating and maintenance personnel must be physically able to handle the bulk, the weight, the power and/or the torque of the machine. Do not use the machine if you have taken any medication or drugs, after drinking alcohol or with any other constraints on your vision, reaction time or judgment.

Work in the best possible position so that you can react with both hands to any normal or unexpected movements of the machine. Maintain a balanced body position and secure footing in order to avoid improper strain and to be able to support the reaction torque of the machine.

Additionally, observe the following:

- Operate the machine only after having carefully read the operation manual.
- Use cutters being appropriate for the machine.
- Secure the work place properly, to prevent persons nearby from injury due to parts being eventually projected.
- Observe the specifications of the manufacturer when selecting the cutter.
- Before starting the work check, that the cutter is firmly fixed.
- If available, remove the wrench before starting the machine.
- Secure the unit with the safety chain before drilling.
- Never use blunt cutters.
- Always disconnect the power supply, when changing the cutters or when working on the unit.
- If the machine blocks, higher reaction torques can occur. Blocking can be caused by: overload, tilting of the cutter in the work piece or when penetrating the material to be drilled. Do not let the cutter rumble on the work piece, as this will most likely increase the vibration. Reduce the contact pressure shortly before the cutter cuts through the material.
- It is possible that the unit keeps on running after it has been switched off. Wait for the motor to stop!
- Never stop the chuck or the cutter by hand.

Safety Instructions for Prevention of Entanglement Hazards



CAUTION – Loose clothing, personal jewellery (e.g. necklace), scarves/ ties, long hair or gloves can get caught up in the machine tool or accessories and thus cause severe injuries (lack of breath by throttling, abrasions, skin injuries and/ or cuts and lacerations).



Wear suitable, close fitting work clothing!

Wear a hair net, if you have long hair.

When handling the machine, jewellery, necklaces, etc. have to be removed or are forbidden, respectively.

Safety Instructions for Prevention of Noise Hazards



Always wear hearing protection – This refers to the operator, as well as to any other person within the vicinity of the machine. Observe the instructions of the employer and of the professional association.

During operation high noise levels can cause permanent hearing problems such as tinnitus (ringing, buzzing, whistling or humming in the ears), hardness of hearing or even deafness.

- If possible, use sound absorbing material, in order to avoid ringing noise at the work pieces.

Safety Instructions for Prevention of Vibration Hazards

Vibrations can cause damage of nerves and blood vasculares in hands and arms, therefore observe the following hints:

- Wear warm clothing and keep your hands warm and dry when working in cold conditions. Exercise hands and fingers regularly.
- Use stands and/or weight balancers, if possible.
- When using a support (e.g. stand) make sure the machine is securely fixed. If no support is used, hold the machine with light but safe grip in order to support the tool's reaction torque. The tighter the grip the greater the risk of vibrations.
- Mount the machine as described in the operating instruction booklet in order to avoid unusually high vibrations.
- Stop work immediately, if you feel any numbness, tingling, pain or whitening of fingers or hands. Inform the employer and consult a doctor.

Safety Instructions for Prevention of Dust and Fume Hazards



Wear respiratory protection - Use respiratory protection as instructed by your employer and as required by occupational health and safety regulations. Dust and fumes being generated during work, respectively being eventually raised in the working environment can cause illness (e.g. cancer, birth defects, asthma and/ or dermatitis).

- Carry out risk assessment regarding dust and fume hazards and implement appropriate measures.
- Keep the working place clean.
- Keep in mind that working in certain materials may create dust and fumes causing a potentially explosive atmosphere.

Remark: Some types of metal may have toxic coatings.
Please pay particular attention to avoid skin contact and breathing in, when working with those materials.
Always use a protective mask. Ask your material supplier about special safety instructions and stick to them.

Safety Instructions for Prevention of Projectile Hazards



Wear impact-resistant safety goggles – This refers to the operator, as well as to the persons within the vicinity of the machine. Assess and determine the grade of protection required depending on the individual case. The risks to others should also be assessed at this time.



On overhead work, wear a safety helmet. If a work piece, accessories, inserted tools, or the tool itself breaks, there is danger from high velocity projectiles.

- Check all parts for damages before using the machine.
- Replace damaged parts immediately.
- When working on brittle material make sure that you are protected against harmful splinters.

Safety Instructions for Prevention of Accessory Hazards

Use only machine tools, accessories and consumables, which are recommended by the manufacturer. Make sure choosing the correct size and the correct type. Use only accessories, which are in proper condition.



CAUTION – Injury due to carelessness!

If the machine is fixed to suspension equipment make sure that it is secure. Never hang the machine onto the supply line.

- Separate the machine from any external energy source before changing the machine tool or any accessory.
- Avoid direct contact with the machine tool during and after use as it can be hot or sharp.
- Wear protective gloves when changing a tool or an accessory!



Notice: Defective/ inappropriate gloves can lead to injury. Wear only proper hand protection, adapted to the work place requirements.



WARNING – Explosion hazard!

When operating the machine in areas exposed to explosion hazards, use only accessories, respectively devices, which are ATEX approved and/or specified.

Safety Instructions for Prevention of Transport Hazards



ATTENTION – Improper Transport, injury due to parts falling down!
Damage of the machine!

- Separate the machine from any external energy source before transportation.
Check that the machine is undamaged and in proper condition.
- Never carry the machine at the supply line.



Wear worker's protective shoes!

Service and Maintenance



Basic Safety Instructions:

WARNING – Maintenance and repair work on hydraulic equipment. Hydraulic can cause severe injury. Observe legal regulations. Take precautions for persons and environment.

Additionally, observe the following:

- Secure the machine against unintentional starting and let the machine cool down to the ambient temperature
- Protection against tipping, tumbling or falling down when assembling/ disassembling the machine/parts.

CAUTION – Skin exposure to hazardous dusts may cause severe dermatitis. Dust at the work place can be raised during the maintenance procedure and can be inhaled. Clean the machine and the work place before maintenance work.



WARNING – Danger of explosion! Generation of sparks during maintenance work!

Consider local safety regulations. Avoid use of force when disassembling and assembling the machine. Always do maintenance work outside hazardous medium.



PROHIBITION - Eating, drinking and smoking are forbidden during maintenance and repair work.



NOTICE – Use only **original SPITZNAS spare parts**, in order to avoid damages.



Otherwise you risk a decrease in machine performance and an increase in maintenance work. Check the adherence to the technical specifications according to the operation manual after each maintenance work.

IMPORTANT – There is no warranty for damages and liability is disclaimed, if **non-original spare parts** are used.

Maintenance Instruction

Generally, hydraulic machines need little maintenance. If these rules are followed, the machine will have the expected durability and high reliability. Service life and performance of the machines are decisively determined by:

- The purity degree of the hydraulic oil,
- the lubrication conditions and maintenance,
- the **regular control of the hydraulic filter/ the hydraulic fluid**, as well as the **regular checking of the machine with regards to external damages**.

Inspection and maintenance can be done by the operator.

Disassembly and re-assembly of the machine have to be executed by qualified staff only. Incorrect assembly can lead to danger of accident for the operator and to defects on the machine.

After completing maintenance and repair work and before restarting production make sure that...

- all materials, tools and other equipment which are required for maintenance or repairs have been removed from the work area of the machine,
- any fluid leaks have been removed,
- all safety devices on the machine have proper function,
- the oil level has been checked, if necessary,
- fixtures of screw connections are tight,
- removed covers, screens or filters were reinstalled.

The employer ensures that all maintenance, inspection and assembly work is done by authorized and qualified experts, who are appropriately informed by thorough study of the operating instruction.

Disassembly- Re-assembly

Maintenance and repair

Disassembly and re-assembly should be done according to the exploded views, respectively the sectional drawings (see repair instruction). All work regarding disassembly and re-assembly, have to be executed by SPITZNAS or skilled staff only.



DANGER – Working with the machine without appropriate preparation and disregarding of instructions. Shut down the machine properly and let it cool down to the ambient temperature.



NOTICE – Special instructions apply for the repair of explosion-proof machines. Retrofits or modifications of the machine can affect the explosion protection. Therefore, they need the manufacturer's acceptance. The explosion-proof machine is designed in the type of protection „c“ constructive safety. All work executed on the machine, influencing the explosion protection, e. g. repairs with mechanical machining, require an approval of an authorized expert or have to be done by the manufacturer. The internal structure must remain unmodified.

Our SPITZNAS-Service is available in case of damage and for all maintenance, repair and assembly work.

Storage

Unused machines and machine tools should be kept in a dry, closed room. Keep them free from damaging influences such as damp, frost or large temperature fluctuations as well as mechanical damage.

Always store the machine in a way that important machine instructions, e. g. on stickers and signs, are legible.

NOTICE – Always connect the loose ends of the hoses with each other, if possible.

Disposal

Dispose of machine and worn out/defective machine tools according the local/national regulations. Fully disassemble the machine for the necessary disposal. Separate materials according to local environmental specifications.

Dispose environmentally hazardous greasing, cooling or cleaning agents in order to avoid environmental contamination.

Environmental Regulations

When working on or with the equipment, it is imperative to observe all legal requirements in regards to waste-disposal and proper recycling.

In particular during installation, repair and maintenance work, water damaging agents, such as



- lubricating grease and oil,
- hydraulic fluid,
- coolant,
solvent containing cleaning agents

must not leak into the ground or reach the sewage system.

These materials must be stored, transported, contained and disposed of in suitable containers!

Troubleshooting

The following table shows possible problems and their causes:

Problem	Cause	Remedy
Magnetic base won't hold effectively	Material being cut may be too thin	Attach an additional piece of metal under work piece where magnet will be located or mechanically clamp magnetic base to work piece
	Swarf or dirt under magnet	Clean
	Irregularity on magnet contact or work piece	Use extreme care, file imperfections flush to surface
Cutter skips out of center-punch mark at initiation of cut	Magnetic base is not holding effectively	See above
	Too much feed pressure at start of cut	Light pressure until a groove is cut. The groove then serves as a stabilizer.
	Cutter is dull, worn, chipped or incorrectly sharpened	Replace or re-sharpen
	Poor center-punch mark Pilot not centered in center-punch mark	Improve center-punch
	Worn or bent pilot	Replace
Excessive drilling pressure required	Loose bolts on main casting or loose slide way adjusting set screws	Adjust where necessary
	Incorrectly re-sharpened, worn or chipped cutter	Re-sharpen or replace
	Coming down on swarf lying on surface of work piece	Take care not to start a cut on swarf
	Slide way needs adjustment or lubrication	Adjust set screws and lubricate
Excessive cutter breakage	Swarf packed inside cutter	Remove swarf
	Steel swarf or dirt under cutter	Remove cutter, clean thoroughly and replace
	Incorrectly re-sharpened or worn cutter	Re-sharpen or replace
	Cutter skipping	See above
	Cutter not attached tightly to arbor	Retighten
Excessive cutter wear	Insufficient use of cutting oil or unsuitable type of oil	Check cooling lubricant
	See above	Replace or re-sharpen
	Incorrectly re-sharpened cutter	Replace or re-sharpen
	Insufficient or spasmodic cutting pressure	Use sufficient steady pressure to slow the drill down. This will result in optimum cutting speed.

We ask you to send the machine to the supplier, if necessary.

Warranty and Liability

Unless otherwise specified, our „General Sales Terms” apply. Warranty and liability claims in regards to persons or equipment damages are invalid, if one or more of the following causes apply:

- Improper use of the machine,
- improper assembly, startup, operation or maintenance of the machine,
- operation of the machine with defect safety devices or improperly fixed or non-functioning safety and protection devices,
- not considering of the instructions in the operating instruction booklet concerning transport, storage, assembly, startup, operation, maintenance and setting up of the machine,
- independent structural alterations or settings on the machine beyond the intended purpose,
- inadequate supervision of wear parts,
- improperly carried out repairs, inspections or maintenance,
- catastrophic cases due to foreign objects, acts of god or other reasons which are beyond our control.

Scope of Delivery

Check, if the scope of delivery is complete:

- 1 Operation and maintenance manual
- 1 Hydraulic Magnetic Core Drill

Declaration of conformity

as defined in the European Union Machine Directive 2006/42/EC and in the
EU-ATEX-Directive 2014/34/EU for usable machines

We, the company
SPITZNAS Maschinenfabrik GmbH, Fellerstraße 4, 42555 Velbert–Langenberg,
declare that the following product

Description: Hydraulic Magnetic Core Drill
Model: **2 1345 0010**

in the version supplied by us, complies with the European Union Machine Directive 2006/42/EC and
the EU-Directive 2014/34/EU (ATEX – group II, category 2, G c IIB T 5).

Applied harmonized norms are:

DIN EN ISO 12100
DIN EN ISO 11148-3
DIN EN 1127-1
DIN EN 13463-1
DIN EN 13463-5

According to section 13 (1) b) ii) of the directive 2014/34/EU the technical documentation is deposited
under reference -Nr. 557/Ex-Ab 2238/14 at the following office;

TÜV Rheinland Industrie Service GmbH
Moltkeplatz 1, 45138 Essen
(Registration No. 0035
for the scope of
the Directive 2014/34/EU)

Name of the authorized person for documentation: Mr. Simon Witt

Address of the authorized person for documentation: see manufacturer's address

42555 Velbert, 05.08.16

Note:



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