

# Operating instructions

## DIA 303 S diamond core drill

# DUSS



### Technical data DIA 303 S

Power input	2000 W
Voltage	230 V
Current input	9.4 A
Frequency	50 - 60 Hz
Machine weight	6.9 kg
Speed / impact force under load	
1. gear	420 - 530 rpm / 8480 - 10600 impacts/min
2. gear	660 - 830 rpm / 13280 - 16600 impacts/min
3. gear	900 - 1130 rpm / 18080 - 22600 impacts/min
Drilling range with diamond core bit	52 - 250 mm
1. gear	dia. 137 - 202 mm (250 mm in masonry)
2. gear	dia. 102 - 137 mm
3. gear	dia. 52 - 102 mm
Max. drilling range	250 mm
Chuck	G 1/2" external thread
Switchable soft impact	
Permanent lubrication	
Swivelling side handle and screw-in auxiliary handle	
Pushbutton switch on/off with trigger lock, ensuring non-fatiguing work	
Safety clutch	
Electronic for constant speed and impact force control, full load speed = no load speed	
Speed and impact force infinitely adjustable with adjusting dial	
Electronic overload indicator	
Service indicator	
Self disengaging carbon brushes	
EN 62841 Class II device	
Interference-suppresses in accordance with EN 55014	

Specifications subject to change

### Components and control elements

- 1 · Holder for auxiliary handle
- 2 · Adjusting dial for speed and impact force
- 3 · Trigger lock for pushbutton switch
- 4 · Pushbutton switch on/off
- 5 · Overload and service indicator
- 6 · Swivelling side handle
- 7 · Gear shift lever
- 8 · Change lever drilling/drilling with soft impact

### Applications

The **DIA 303 S diamond core drill** is suitable for dry diamond core drilling with dust extraction into all types of masonry, concrete and

reinforced concrete. Concrete and reinforced concrete must only be drilled with soft impact. The user is solely responsible for damages which result from improper use.

### Electrical connection

**To prevent the machine from being started unintentionally during care, maintenance or repair operations, and before replacing the tool, unplug the machine at the mains socket.**

The machine is a Class II device and is totally insulated. For this reason, the housing must never be grounded or drilled with holes, it must never be used if damaged, and it must always be kept dry. The voltage indicated on the rating plate must agree with the power supply voltage. Only use the extension lead with sufficient section approved

for the field of application.

## Inserting and changing tools

The chuck of the diamond core drill with G 1/2" external thread is located on the drilling spindle. Only use suitable and high-quality tools. Use cutting tools with good cutting properties. When using diamond core bits, ensure that the diamond segments still protrude sufficiently from the core bit tube on the inner and outer diameter. Before mounting the tool, apply a small amount of dry lubricant spray to the mounting system.

Loosen the clamping ring of the SK suction head and move it to the rearmost position. Screw the diamond core bit onto the drill spindle and tighten it with the enclosed open-end wrench.

## Gearshift

The machine features a 3-speed-gearbox, which allows the optimum speed to be set for each drilling diameter. The preselection of the speed is made at the gear shift lever (7). Never change gears with force and only when the machine is running down or stopped. If the gear lever cannot be moved to the desired position when the machine is at a standstill, briefly touch the pushbutton switch (4) at the same time. The recommended speeds for each tool are given in the carrying case.

## Soft impact

The soft impact can be easily switched on or off using the change lever (8) located at the bottom of the drill head. The soft impact accelerates the work progress in hard materials. Concrete and reinforced concrete should only be drilled with soft impact.

**Symbol „drill“** on change lever (8) indicates the position drilling without soft impact

**Symbol „hammer“** on change lever (8) indicates the position drilling with soft impact

## Operation

**Always comply with recognized accident prevention regulations and the accompanying safety precautions. In case of functional failure, have the machine inspected by a qualified electrician before continuing work.**

Before starting work unplug the machine at the mains socket. Make sure that the swivelling side handle (6) is **firmly** screwed in at the desired position. Always hold the machine with both hands when working and maintain a firm stance.

**Continuous operation:** Press the pushbutton switch (4) and depress the trigger lock (3) upwards.

**Switch off:** Briefly press the pushbutton switch (4).

**Infinitely adjustable speed:** Pilot drilling is made easier by reducing the speed. Afterwards, work should always be continued at full speed and thus full power.

The adjusting dial (2) is ergonomically arranged to permit this either before or during work.

+ = full speed

- = reduced speed

## Dry drilling

### General information

Pilot drilling always without soft impact, with low contact pressure. If the tool jams, do not attempt to release it by switching the machine on and off. Switch the machine off immediately and release the tool by turning it clockwise and counterclockwise with a suitable open-end wrench. Carefully pull the tool out of the drill hole. When drilling, the adjusting dial (2) should always be set to full speed. The speed should only be reduced for pilot drilling or sharpening on the sharpening plate etc.

### Dust extraction

**Dry diamond drilling must always be carried out with dust extraction.** It is necessary that the suction holes around the chuck on the diamond drill bit are open and that the industrial vacuum cleaner is attached to the SK suction head. The extraction system not only enables almost dust-free drilling, but also ensures increased drilling progress, a longer service life of the diamond core bit and optimum cooling of the diamond segments. Drilling without dust extraction damages the diamond segments due to overheating. An industrial vacuum cleaner with filter cleaning and according to valid directives (BGIA dust class M) must be used. To achieve a good suction performance, the industrial vacuum cleaner must be cleaned at regular intervals.

### Hand-held, with centring

Before drilling, a pilot drill hole with drilling dia. 14 mm, by approx. 8 cm deep, must be drilled in the centre of the planned drill hole. This serves to guide the supplied ZST centring rod, which should be inserted into the chuck or extension. For pilot drilling with the ZST centring rod inserted, drill to a depth of approx. 2 cm with the tool, switch off the machine, remove the ZST centring rod and continue drilling.

When using the optional SZ quick centring bit, adapted to the tool length, the pilot drilling is not necessary.

A wooden plate with sawn-in prism in which the core bit is guided can also serve as a centring aid.

### Stand mounted

The machine can be fixed in the BS 160 drill stand (up to max. drilling range 202 mm) with the mounted side handle (6). For stand mounted dry drilling, the TBS dry extraction system (optional) must also be mounted between the chuck and the diamond core bit. This must be lubricated from time to time with dry lubrication spray.

For easy pilot drilling, attach the optional BS 160-ABH centring aid to the drill stand (necessary for large diameters).

### Drilling

Work with sufficient contact pressure when drilling without soft impact. If it is too low, the diamonds tend to polish. In this case, the drilling progress becomes less and less until finally no more material is removed. This can only be corrected by briefly drilling in the SP sharpening plate.

### Drilling with soft impact

Select moderate contact pressure when drilling with soft impact, let the core bit „work“ in conjunction with the soft impact. Especially as soon as reinforcement is drilled through in order to reduce vibrations.

## Ergonomic work

A holder (1) is located on the power tools switch handle, into which an auxiliary handle (included in the scope of delivery) can be screwed in. This ensures a comfortable, back-saving posture when working downwards (compressor setting).

## Overload indicator

The overload indicator (5) is located at the lower part of the switch handle and serves to check the machine load. The display of the different operating modes is done by means of a green LED light.

### Functional description

#### Continuous green light:

Unit switched on and machine load is low to optimum.

#### Flashing green light, slow:

Machine is overloaded, the contact pressure must be reduced.

#### Flashing green light, fast:

Machine has reduced speed due to overload. The contact pressure must be reduced.

#### Green light went out:

Machine has switched off due to overload and must be switched off and on again. Alternatively, the machine is not switched on.

## Service indicator

The service indicator (5) is located on the lower part of the switch handle. If the service indicator lights up red, the running time for a service has been reached. It is possible to work with the machine for a few more hours from the time the service indicator starts to light up but will then switches off automatically. Take the power tool to a DUSS Service Centre as soon as possible to ensure that its serviceability is maintained.

## Mechanical and electric overload protection

The machine is equipped with a mechanical and an electronic overload protection.

### Mechanical overload protection:

The safety clutch protects the user from injury if the rotating tool suddenly jams.

### Electronical overload protection:

The electronics protect the motor from being overloaded. If the contact pressure is too high, the speed of the drill bit is reduced. This condition is cancelled by relieving the drill bit and thus the motor. Motor and drill bit run at nominal speed again.

If the overload lasts longer than 5 seconds, the motor is switched off electronically. To continue work, the machine must be switched off and on again after a waiting period of 2 seconds using the pushbutton switch. The contact pressure must be adjusted.

Before switching the machine on again, make sure that the drill bit can be turned easily and does not jam in the drill hole.

## Lubrication

The entire machine is permanently lubricated by means of a closed lubrication system.

## Maintenance and care

**Caution: Always remove the mains plug from the socket before starting any maintenance and care work.**

Clean the machine after finishing work. Also clean the chuck and apply some dry lubricant spray. Clean the machine with a dry or damp cloth and not with a jet of water. Ensure that no water gets into the machine. Make sure that the ventilation slots are always clean.

## Sharpening

Blunt diamond core bits should be sharpened by briefly drilling without suction at reduced speed and without soft impact in the SP sharpening plate. Worn or damaged diamond drill bits can be refitted by DUSS depending on their condition. If a segment breaks off, stop working immediately, as this will destroy the diamond core bit.

## Warranty

The warranty period is 12 months from the date of delivery as shown on the warranty certificate or invoice. The warranty is valid as long as the machine has been operated and handled correctly, cleaned and serviced properly in accordance with the operating instructions and has not been tampered with by unauthorized persons. The warranty is limited to the free repair or replacement of parts which become defective due to production or material faults only. Parts becoming defective as a result of normal wear or due to tampering by the customer or others are not covered by this warranty. The warranty is valid only if genuine DUSS tools, consumables, accessories and spare parts are used, i.e. only if the technical unit is maintained.

Additional claims are excluded, i.e., DUSS is not liable for direct or indirect defects or consequential damages, losses or expenses in connection with the use of, or the inability to use the machine for any purpose. Implied warranties of usability or suitability for a particular purpose are excluded.

If a defect is discovered, the machine must be sent immediately to

DUSS or a DUSS customer service centre. All previous written or verbal warranties are superseded by the above warranty obligations.

## Service

Repairs may only be carried out by a qualified electrician. Failing this, the operator may be exposed to the risk of accidents. If a fault occurs, you are accordingly strongly recommended to return the machine to the following address



Alternatively send it to a DUSS customer service centre.

Their experienced specialists and special equipment allow them to rectify faults properly.

The machine is to be returned complete, at the sender's risk and expense.

## Safety precautions



**Read all the safety notes and instructions!**

Failure to observe these may cause an electric shock, fire and/or serious injuries.

Keep the safety notes and instructions for future reference.

### Safety precautions

Wear appropriate protective equipment, e.g.



Ear protection



Goggles



Safety gloves



Hard toe-capped boots



Safety helmet



Breathing mask

Observe the accompanying safety instructions and the applicable regulations issued by your trade association or similar.

### Additional safety precautions

#### Wear ear protection when impact drilling.

Exposure to noise can cause hearing loss.

#### Use auxiliary handle supplied with the power tool.

Before starting make sure that the swivelling side handle and the auxiliary handle are firmly screwed in at the desired position. Always hold the machine with both hands when working and maintain a firm stance. Work concentrated. Loss of control of the power tool can cause personal injury.

#### Hold power tool by insulated gripping surfaces, when performing an operation where the cutting accessory may contact hidden

### wiring or its own cord.

Cutting accessory contacting a „live“ wire may make exposed metal parts of the power tool „live“ and could give the operator an electric shock.

### Take protective measures when dust can develop during working that is harmful to one's health, combustible or explosive.

Some dusts are regarded as carcinogenic. Wear a breathing mask and work with dust extraction.

### Do not expose power tool to rain or splash water.

Stop working immediately if water is entering the power tool and have the power tool checked by a qualified electrician. Otherwise the life of the user may be at risk.

- Before starting drilling work, check that the core bit is correctly seated on the chuck or, when working with an extension, that the extension is firmly seated on the drill spindle and the core bit on the extension.
- Ensure that the drilling does not affect the statics of the building.
- The area around the drilling must be devoid of any electricity cables, gas, water or other pipes. Any cable or pipes in the area around the drilling must be disconnected.
- Special safety precautions must be taken for drillings in walls where the drill stand is fixed by vacuum.
- Ensure that if the drill core drops out, especially in the case of ceiling breakthroughs, nobody will be injured or damage can occur. If necessary, install a collecting device and close off the front and rear drilling area.
- Have the cord and the plug exchanged exclusively by DUSS or a DUSS customer service.
- Only use DUSS diamond core bits with drilling dia. 52 - 250 mm.

## Noise and vibration information

(in accordance with EN 62841)

### Typical A-weighted noise levels of the DIA 303 S diamond core drilling in sand-lime brick, drilling dia. 102 mm:

Noise pressure level:	$L_{pA} = 97 \text{ dB (A)}$
Noise power level:	$L_{WA} = 108 \text{ dB (A)}$
Uncertainty:	$K_{pA} = K_{WA} = 4 \text{ dB}$

Wear ear protection.

### Vibration data for the DIA 303 S diamond core drilling in sand-lime brick, drilling dia. 102 mm:

Normal setting:	$a_{h,DD} = 2.3 \text{ m/s}^2$
Uncertainty:	$K = 1.5 \text{ m/s}^2$
Compressor setting:	$a_{h,DD} = 3.1 \text{ m/s}^2$
Uncertainty:	$K = 1.5 \text{ m/s}^2$

### Typical A-weighted noise levels of the DIA 303 S diamond core drilling with impact in concrete, drilling dia. 82 mm:

Noise pressure level:	$L_{pA} = 99 \text{ dB (A)}$
Noise power level:	$L_{WA} = 110 \text{ dB (A)}$
Uncertainty:	$K_{pA} = K_{WA} = 3 \text{ dB}$

Wear ear protection.

### Vibration data for the DIA 303 S diamond core drilling with impact in concrete, drilling dia. 82 mm:

Normal setting:	$a_{h,ID} = 14.4 \text{ m/s}^2$
Uncertainty:	$K = 1.5 \text{ m/s}^2$
Compressor setting:	$a_{h,ID} = 15.0 \text{ m/s}^2$
Uncertainty:	$K = 1.5 \text{ m/s}^2$

The values given in this instruction have been measured in accordance with EN 62841 standardised measurement methods and may be used for comparing power tools with each other. They also may be used for a preliminary assessment of exposure and represent the main

applications of the power tool. However, if the power tool is used for other applications or with other accessories or if it is poorly maintained, the values may differ. This may increase the exposure level over the entire working period.

For an accurate estimation of the exposure level, the times when the power tool is switched off or when it is running but not actually in use should be taken into account. This may reduce the exposure level over the entire working period. Wear ear protection and take additional safety measures to protect the operator from the effects of vibration such as: maintain of the power tool and the accessories, keeping hands warm, organization of work patterns.

## Declaration of Conformity

We declare in our sole responsibility that the DIA 303 S diamond core drill conforms to the following standards or standardisation documents: EN 62841-1, EN 62841-2-1, EN 55014-1, EN 55014-2, EN 61000-3-2, EN 61000-3-3 as per the provisions laid down in Directive 2006/42/EG, 2014/30/EU, 2011/65/EU

The technical documentation is archived at the manufacturer.

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