

HILTI

SF 6H-A22

English



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1 Information about the documentation




1.1 About this documentation

- Read this documentation before initial operation or use. This is a prerequisite for safe, trouble-free handling and use of the product.
- Observe the safety instructions and warnings in this documentation and on the product.
- Always keep the operating instructions with the product and make sure that the operating instructions are with the product when it is given to other persons.

1.2 Explanation of symbols used



1.2.1 Warnings

Warnings alert persons to hazards that may occur when handling or using the product. The following signal words are used in combination with a symbol:

	DANGER! Draws attention to an imminent hazard that will lead to serious personal injury or fatality.
	WARNING! Draws attention to a potential hazard that could lead to serious personal injury or fatality.
	CAUTION! Draws attention to a potentially dangerous situation that could lead to minor personal injury or material damage.


1.2.2 Symbols in the documentation

The following symbols are used in this document:

	Read the operating instructions before use
	Instructions for use and other useful information

1.2.3 Symbols in the illustrations

The following symbols are used in illustrations:




	These numbers refer to the corresponding illustrations found at the beginning of these operating instructions.
3	The numbering reflects the sequence of operations shown in the illustrations and may deviate from the steps described in the text.

⑪	Item reference numbers are used in the overview illustration and refer to the numbers used in the key in the product overview section.
! 👁	This symbol is intended to draw special attention to certain points when handling the product.

1.3 Product-dependent symbols

1.3.1 Symbols on the product

The following symbols are used on the product:

	Drilling without hammering
	Drilling with hammering action (hammer drilling)
	Protection class II (double-insulated)
n_0	Rated speed under no load
/min	Revolutions per minute

1.4 Product information

Hilti products are designed for professional use and may be operated, serviced and maintained only by trained, authorized personnel. This personnel must be informed of any particular hazards that may be encountered. The product described and its ancillary equipment may present hazards when used incorrectly by untrained personnel or when used not as directed.

The type designation and serial number are printed on the type identification plate.

- ▶ Write down the serial number in the table below. You will be required to state the product details when contacting Hilti Service or your local Hilti organization to enquire about the product.

Product information

Drill/driver	SF 6H-A22
Generation	01
Serial no.	

2 Safety

2.1 General power tool safety warnings

⚠ WARNING

Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

Work area safety

- ▶ **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- ▶ **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.
- ▶ **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

Electrical safety

- ▶ **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.
- ▶ **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- ▶ **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- ▶ **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- ▶ **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- ▶ **If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply.** Use of an RCD reduces the risk of electric shock.

Personal safety

- ▶ **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- ▶ **Use personal protective equipment. Always wear eye protection.** Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- ▶ **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.

- ▶ **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- ▶ **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- ▶ **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.
- ▶ **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.

Power tool use and care

- ▶ Do not force the power tool. Use the correct power tool for your application. The correct power tool will do the job better and safer at the rate for which it was designed.
- ▶ **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- ▶ **Disconnect the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- ▶ **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
- ▶ **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- ▶ **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- ▶ **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.

Battery tool use and care

- ▶ **Recharge only with the charger specified by the manufacturer.** A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.
- ▶ **Use power tools only with specifically designated battery packs.** Use of any other battery packs may create a risk of injury and fire.

- ▶ **When battery pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws or other small metal objects, that can make a connection from one terminal to another.** Shorting the battery terminals together may cause burns or a fire.
- ▶ **Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help.** Liquid ejected from the battery may cause irritation or burns.

Service

- ▶ **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.

2.2 Additional safety precautions for screwdrivers

Personal safety

- ▶ Only use the product if it is in perfect working order.
- ▶ Never tamper with or modify the tool in any way.
- ▶ Use the auxiliary grip supplied with the tool. Loss of control can cause personal injury.
- ▶ Always hold the power tool with both hands on the grips provided. Keep the grips clean and dry.
- ▶ Hold the power tool by the insulated gripping surfaces when performing an operation where the accessory tool may come into contact with concealed wiring. If the accessory tool comes into contact with a live wire, metal parts of the power tool may also become live, causing the operator to receive an electric shock.
- ▶ Avoid touching rotating parts – risk of injury!
- ▶ Wear suitable protective glasses, a hard hat, ear protection, protective gloves and light respiratory protection while using the tool.
- ▶ Wear protective gloves also when changing the accessory tool. Touching the accessory tool presents a risk of injury (cuts or burns).
- ▶ Wear eye protection. Flying fragments present a risk of injury to the body and eyes.
- ▶ Before starting work, check the hazard class of the dust that will be produced when working. Use an industrial vacuum cleaner with an officially approved protection class in compliance with the locally applicable dust protection regulations. Dust from materials such as lead-based paint, certain types of wood and concrete/masonry/stone containing quartz, minerals or metal may be harmful to health.
- ▶ Make sure that the working area is well ventilated and, where necessary, wear a respirator appropriate for the type of dust generated. Contact with or inhalation of dust may cause allergic reactions and/or respiratory or other diseases to the operator or bystanders. Certain kinds of

dust, such as oak and beech dust, are classified as carcinogenic, especially in conjunction with additives for treating wood (chromate, wood preservative). Materials containing asbestos may only be handled by specialists.

- ▶ Take breaks between working and do physical exercises to improve the blood circulation in your fingers. Exposure to vibration during long periods of work can lead to disorders of the blood vessels and nervous system in the fingers, hands and wrists.

Electrical safety

- ▶ Before starting work, check the working area for concealed electric cables or gas and water pipes. If you damage an electric cable accidentally, external metal parts of the power tool may become live and present a risk of electric shock.

Careful handling and use of power tools

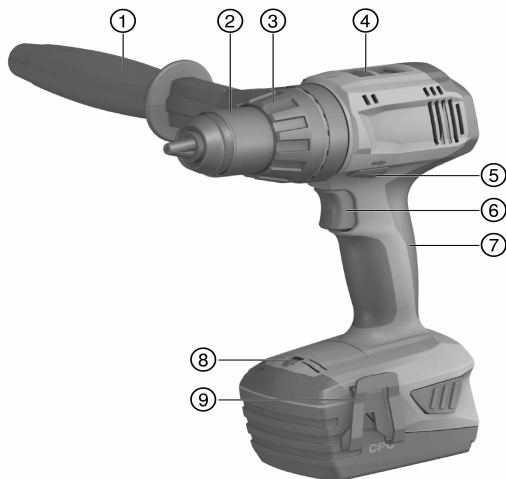
- ▶ Switch the power tool off immediately if the accessory tool jams. The power tool may go off course and veer to the side.
- ▶ Wait until the power tool has come to a complete stop before setting it down.

2.3 Careful handling and use of batteries

- ▶ Observe the special guidelines applicable to the transport, storage and use of lithium-ion batteries.
- ▶ Do not expose batteries to high temperatures, direct sunlight or fire.
- ▶ Do not take apart, squash or incinerate batteries and do not subject them to temperatures over 80 °C.
- ▶ Do not attempt to charge or continue to use damaged batteries.
- ▶ If the battery is too hot to touch, it may be defective. In this case, place the power tool in a non-flammable location, well away from flammable materials, where it can be kept under observation and left to cool down. Contact **Hilti** Service after the battery has cooled down.

3 Description

3.1 Overview of the product



This Product is Certified
Ce produit est homologué
Producto homologado por
Este producto está registrado



- | | |
|--|---|
| ① Pivotal side handle | ⑦ Vibration-absorbing grip |
| ② Chuck (keyless chuck / hex bit holder) | ⑧ Illumination |
| ③ Torque and operating mode selector ring | ⑨ Belt hook (optional) |
| ④ Two-speed gear selector switch | ⑩ Battery |
| ⑤ Forward / reverse selector switch with safety lock | ⑪ Charge state and fault display (Li-ion battery) |
| ⑥ Control switch (with electronic speed control) | ⑫ Release button with additional function (charge state display activation) |

3.2 Intended use

The product described is a hand-held cordless drill / driver. It is designed for drilling in steel, wood, plastic, cellular concrete and masonry and for driving and removing screws.

- ▶ Use this product only with **Hilti** Li-ion batteries of the B18 / B22 series.
- ▶ Use only **Hilti** battery chargers of the C4/36 series with these batteries.

3.3 Items supplied

Drill / driver, side handle, operating instructions.

You can find other system products approved for your product at your local **Hilti** Center or online at: www.hilti.com

3.4 Li-ion battery state of charge display

The Li-ion battery state of charge and malfunctions of the power tool are indicated by the display on the Li-ion battery. The Li-ion battery state of charge is displayed after pressing one of the two battery release buttons.

Status	Meaning
4 LEDs light.	• Charge state: 75 % to 100 %
3 LEDs light.	• Charge state: 50 % to 75 %
2 LEDs light.	• Charge state: 25 % to 50 %
1 LED lights.	• Charge state: 10 % to 25 %
1 LED blinks, the power tool is ready for use.	• Charge state: < 10 %
1 LED blinks, the power tool is not ready for use.	• The battery has overheated.
4 LEDs blink, the power tool is not ready for use.	• The power tool has overheated or is overloaded.

**Note**

Battery charge state cannot be displayed while the control switch is pressed and for up to 5 seconds after releasing the control switch.

If the battery charge state LEDs blink, please refer to the information given in the Troubleshooting section.

3.5 Indication of overloading and overheating

The power tool is equipped with an electronic system to protect against overloading and overheating. The power tool switches itself off automatically in the event of overloading or overheating. After releasing the control switch, the power tool may not restart immediately when the switch is pressed again (while the power tool is cooling down).

4 Technical data**4.1 Drill/driver**

		SF 6H-A22
Rated voltage		21.6 V _{DC}
Weight		4.4 lb (2.0 kg)
Speed	1st gear	0 /min ... 480 /min
	2nd gear	0 /min ... 1,600 /min
Torque (soft joint) $\frac{1}{2}$		≤ 37 ftlb _r (≤ 50 Nm)
Impact speed		28,800 /min

4.2 Accessory tools – permissible diameters

Ø keyless chuck diameter range	1/16 in ... 1/2 in
Ø keyless chuck diameter range	1.5 mm ... 13 mm
Ø wood drill bit (softwood)	1/16 in ... 3/4 in
Ø wood drill bit (softwood)	1.5 mm ... 20 mm
Ø wood drill bit (softwood)	1/16 in ... 1 1/4 in
Ø wood drill bit (softwood)	1.5 mm ... 32 mm
Ø Drill bits for metal	1/16 in ... 1/2 in
Ø Drill bits for metal	1.5 mm ... 13 mm

Ø drilling in concrete/masonry (hammer drilling)	5/32 in ... 1/2 in
Ø drilling in concrete/masonry (hammer drilling)	4 mm ... 12 mm

5 Operation

5.1 Inserting the battery

⚠ CAUTION

Risk of injury. The drill/driver may start inadvertently.

- ▶ Before fitting the battery, check that the drill/driver is switched off and that the switch safety lock is activated.

⚠ CAUTION

Electrical hazard. Dirty contacts may cause a short circuit.

- ▶ Before inserting the battery, check to ensure that the battery terminals and the contacts in the drill/driver are free from foreign objects.

⚠ CAUTION

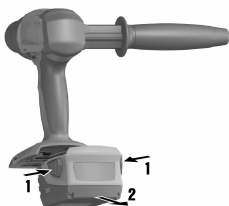
Risk of injury. If the battery is not fitted correctly it may drop out and fall.

- ▶ Check that the battery is securely seated in the tool so that it cannot drop out and fall, thereby presenting a hazard to other persons.



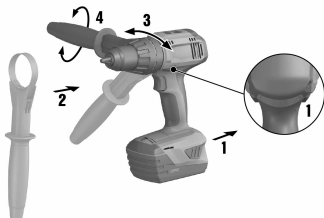
- ▶ Fit the battery and check that the battery is securely seated in the power tool.

5.2 Removing the battery



- ▶ Remove the battery.

5.3 Fitting and adjusting the side handle



- ▶ Fit the side handle.

5.4 Fitting the belt hook (optional)



WARNING

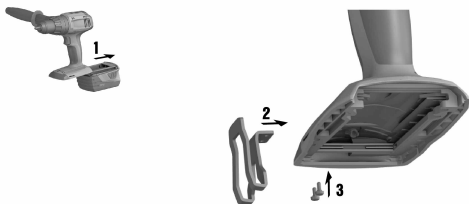
Risk of injury. A falling power tool may present a risk of injury to yourself and others.

- ▶ Check that the belt hook is fitted securely before beginning work.



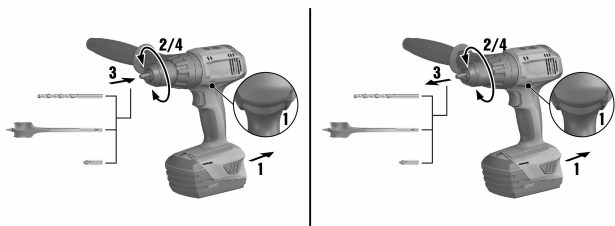
Note

The belt hook allows the power tool to be attached to a belt worn by the operator. The belt hook can be fitted to allow attachment on the left or right side of the body.



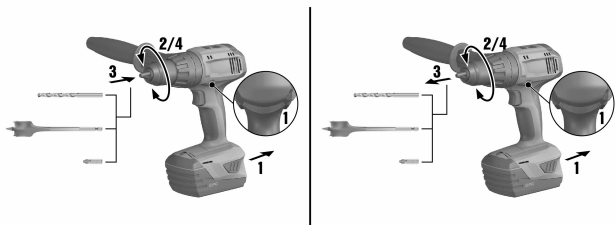
- ▶ Fit the mounting plate into the guides provided.

5.5 Fitting or removing the drill bit



- ▶ Fit the drill bit into the chuck or remove it from the chuck.

5.6 Fitting or removing the bit adapter / bit



- ▶ Insert the bit adapter in the chuck and then turn the chuck sleeve until tight.

5.7 Drilling

CAUTION

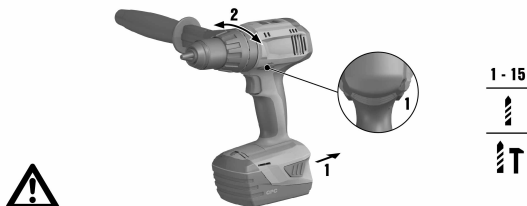
Risk of injury. The accessory tool may suddenly stall, causing the power tool to rotate about its own axis.


- ▶ Use the power tool with the side handle fitted and always hold it securely with both hands.
- ▶ Always grip the side handle at its outermost end.

CAUTION

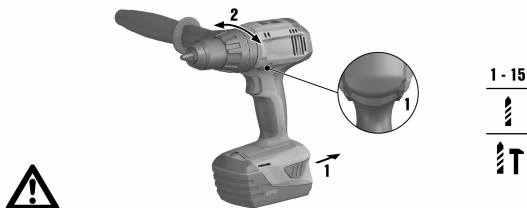
Risk of injury. Risk of flying fragments.


- ▶ Wear eye protection.



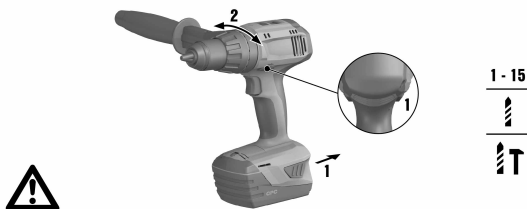
- ▶ Set the torque and operating mode selector ring to the “Drilling” symbol .

5.8 Hammer drilling



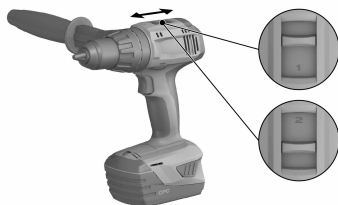
- ▶ Set the selector ring to the “Hammer drilling” position .

5.9 Screwdriving



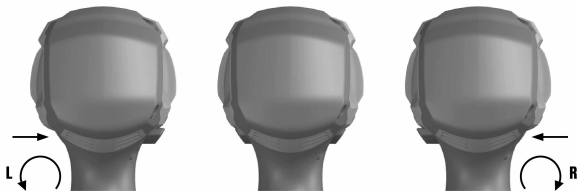
- ▶ Set the torque and operating mode selector ring to the required torque.

5.10 Selecting the gear



- ▶ Select the gear.

5.11 Setting forward or reverse rotation



- ▶ Set the forward / reverse selector switch to forward or reverse rotation.

6 Care and maintenance

6.1 Care and maintenance of cordless tools

WARNING

Risk of electric shock! Attempting care and maintenance with the battery fitted in the tool can lead to severe injury and burns.

- ▶ Always remove the battery before carrying out care and maintenance tasks!

Care and maintenance of the tool

- Carefully remove any dirt that may be adhering to parts.
- Clean the air vents carefully with a dry brush.
- Use only a slightly damp cloth to clean the casing. Do not use cleaning agents containing silicone as these may attack the plastic parts.

Care of the lithium-ion batteries

- Keep the battery free from oil and grease.
- Use only a slightly damp cloth to clean the casing. Do not use cleaning agents containing silicone as these may attack the plastic parts.
- Avoid ingress of moisture.

Maintenance

- Check all visible parts and controls for signs of damage at regular intervals and make sure that they all function correctly.
- Do not operate the cordless tool if signs of damage are found or if parts malfunction. Have the tool repaired by **Hilti Service** immediately.
- After cleaning and maintenance, fit all guards or protective devices and check that they function correctly.



Note

To help ensure safe and reliable operation, use only genuine Hilti spare parts and consumables. Spare parts, consumables and accessories approved by Hilti for use with the product can be found at your local **Hilti Center** or online at: **www.hilti.com**

7 Transport and storage

7.1 Transport and storage

Transport

CAUTION

Inadvertent starting during transport. Uncontrolled starting during transport may occur if the battery is fitted, thereby resulting in damage to the tool.

- ▶ Always remove the battery before transporting the tool.

- ▶ Remove the battery.
- ▶ Transport the tool and battery individually packaged.
- ▶ Never transport batteries in bulk form (loose, unprotected).
- ▶ Check tools and batteries for damage before use after long periods of transport.

Storage



CAUTION

Inadvertent damage caused by defective battery. A leaking battery may damage the tool.

- ▶ Always remove the battery before storing the tool.

- ▶ Store the tool and battery in a place that is as cool and dry as possible.
- ▶ Never store batteries in direct sunlight, on heating units or behind a window pane.
- ▶ Store the tool and batteries in a place where they cannot be accessed by children or unauthorized persons.
- ▶ Check the tool and batteries for damage before use after long periods of storage.

8 Troubleshooting

If the trouble you are experiencing is not listed in this table or you are unable to remedy the problem by yourself, please contact **Hilti Service**.

Trouble or fault	Possible cause	Action to be taken
The drill / driver doesn't work.	The battery is not fitted correctly.	▶ Fit the battery.
	Low battery.	▶ Change the battery and charge the empty battery.
All 4 LEDs blink. The drill / driver doesn't work.	The drill / driver has been briefly overloaded.	▶ Release the control switch and then press it again.
	Protection against over-heating	▶ Allow the drill / driver to cool down and clean the air vents.
1 LED blinks. The drill / driver doesn't work.	Low battery.	▶ Change the battery and charge the empty battery.
	The battery is too cold.	▶ Bring the battery to the recommended operating temperature.

Trouble or fault	Possible cause	Action to be taken
1 LED blinks. The drill / driver doesn't work.	The battery is too hot.	▶ Bring the battery to the recommended operating temperature.
Hammer drilling is not possible.	The operating mode is not set correctly at the selector ring.	▶ Set the selector ring to the "Hammer drilling" position HT .
The control switch can't be pressed, i.e. the switch is locked.	The forward/reverse selector switch is in the middle (transport) position.	▶ Push the forward/reverse switch to the left or right.
The drill / driver or the battery gets very hot.	Electrical fault.	▶ Switch the drill / driver off immediately, remove the battery and contact Hilti Service .
	The drill / driver is overloaded (application limit exceeded).	▶ Check the application.

9 Disposal

WARNING

Risk of injury. Hazards presented by improper disposal.

- ▶ Improper disposal of the equipment may have the following consequences: The burning of plastic components generates toxic fumes which may present a health hazard. Batteries may explode if damaged or exposed to very high temperatures, causing poisoning, burns, acid burns or environmental pollution. Careless disposal may permit unauthorized and improper use of the equipment. This may result in serious personal injury, injury to third parties and pollution of the environment.
- ▶ Dispose of defective batteries right away. Keep them out of reach of children. Do not disassemble or incinerate the batteries.
- ▶ Batteries that have reached the end of their life must be disposed of in accordance with national regulations or returned to **Hilti**.

 Most of the materials from which **Hilti** tools and appliances are manufactured can be recycled. The materials must be correctly separated before they can be recycled. In many countries, your old tools, machines or appliances can be returned to **Hilti** for recycling. Ask **Hilti Service** or your Hilti representative for further information.

10 Manufacturer's warranty

- ▶ Please contact your local **Hilti** representative if you have questions about the warranty conditions.



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