

Operating Manual

Power Drive F35 Stud Driver



Masthead

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This operating manual has been drawn up with the greatest care. Nevertheless, fischerwerke GmbH & Co. KG assumes no liability for possible errors in this operating manual and their consequences. Furthermore, no liability is assumed for direct or consequential damages resulting from the improper use of the equipment described.

The national safety and occupational safety regulations and the safety precautions given in this operating manual must be observed when using the tool.

All product designations and brand names are the property of their owners and are not explicitly marked as such.

Amendments to content reserved.

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1 About the Operating Manual

This operating manual contains all important information for safe use of the **Power Drive F35 Stud Driver**. It also describes handling, maintenance, troubleshooting and consumables.

- Do not put the Stud Driver into operation before you have completely read and understood the operating manual.
- Keep this operating manual with the Stud Driver at all times.
- The Power Drive F35 Stud Driver is also referred to as "tool" in this operating manual.

1.1 Symbols Used in this Operating Manual

Observance of the safety and hazard warnings is a basic precondition for the safe use of the Stud Driver. The different warnings are marked with corresponding symbols.

DANGER!



This pictogram with the word "DANGER!" draws attention to an impending hazard that will result directly in serious injury or even death if not avoided.

- ▶ *This arrow points to the measure(s) to be taken to avoid the impending hazard.*

WARNING!



This pictogram with the word "WARNING!" draws attention to an impending hazard that may lead to serious injury or even death if not avoided.

- ▶ *This arrow points to the measure(s) to be taken to avoid the impending hazard.*

CAUTION!



This pictogram with the word "CAUTION!" draws attention to an impending hazard that may result in minor to moderate injury or material damage if not avoided.

- ▶ *This arrow points to the measure(s) to be taken to avoid the impending hazard.*

NOTE



This pictogram "Note" draws attention to tips and recommendations for the effective use and operation of the equipment.

In addition, the common pictograms and hazard symbols are used at the appropriate points in this operating manual.

2 Safety Precautions

Observance of the following safety precautions and the national safety and occupational safety regulations is a precondition for safe and trouble-free use of the Stud Driver. Therefore read all the precautions carefully and observe them when working with the equipment.

2.1 Intended Use

The Power Drive F35 Stud Driver from fischer is designed for the professional settings of the intended fastener elements (see chapter 8) in suitable substrates (see chapter 4).

DANGER!



If not used for the intended purpose the tool, the associated fastener elements and the accessories available as options can pose a source of danger.

- ▶ *The safety precautions and the instructions on the care and maintenance of the Stud Driver in this operating manual must be observed at all times.*

2.2 Demands on the Operating Personnel

- The minimum age for operation of the tool is stipulated in the national regulations.
- The tool may only be operated manually and employed, serviced and maintained by professional, certified operators.
- Carry out work with this tool in a concentrated, controlled and sensible manner at all times. Do not use the tool if you are tired or under the influence of drugs, alcohol or medication that can impair your balance and / or power of judgement. Observe any physical and / or psychological limitations.
- Do not eat, drink or smoke when working with the Stud Driver.
- During interruptions in work, remove the cartridge strips and fastener elements from the tool.
- Never leave the tool lying around unsupervised.

2.3 Personal Protective Equipment and Personal Safety



- Operators and other persons standing around must wear personal protective equipment at all times consisting of a helmet, goggles and ear protectors. If protective equipment is not worn, there is a danger of serious bodily injury as well as injury to the eyes and hearing damage.



- Always wear protective gloves when working with the tool, as the tool can become hot during operation.
- During work, keep other persons - in particular children - out of the working area (see also notes in chapter 2.5).
- Ensure that the handle of the equipment has a good grip and keep it clean, dry and free from oils and greases.

2 Safety Precautions

- Before starting stud driving, ensure that there is no-one behind or under the place of work.
- Never direct the tool towards yourself or other persons or press the tool against parts of the body. Serious or even fatal injuries can result even from unintentional firing of the Stud Driver.

2.4 Improper Use

- The Stud Driver forms a technical unit together with the safety cartridges and fastener elements specified in chapter 8. For this reason only consumables, accessories and spare parts from fischer designed for this tool may be used.
- Mechanical modification or manipulation of the tool is not permitted. Do not manipulate or modify the tool.
- On no account may the safety functions of the Stud Driver be by-passed.
- Always check the tool before starting work to ensure that it is functioning correctly. If the tool does not function correctly, it must be taken out of operation and clearly marked as defective. Do not use the tool again until it has been properly repaired.
- Always handle the tool as if it were ready for operation.
- Before starting work, check that the tool is unloaded and that the stud opening is free.
- Carry out the driving operation only with fastener elements loaded, never without. Load the tool with fastener elements and cartridges only immediately before starting work.
- Ensure that only **one single** fastener element is inserted into the fastener guide at a time.
- Do not drive fastener elements into existing holes.
- Never press your finger against the trigger before the fastener element opening is pressed against the working surface.
- Always hold the tool with bent arms perpendicularly to the working surface.
- If possible, use the stabilizer when driving studs into concrete or steel.
- Do not drive fastener elements into cast iron, aerated concrete, thin sheet metal (< 4 mm), ceramic tiles, hollow bricks, insulating materials, rock, copper, brass, bronze, plastic, marble or glass. These materials can splinter.
- If the tool is dropped, it must be inspected and repaired, if necessary, before work is continued. On no account may a damaged tool be used.

2 Safety Precautions

2.5 Working Environment

- The working area must be cordoned off and marked with warning signs when stud drivers are in use. The warning signs must bear the text "Stud drivers in operation" and be set up a sufficient distance from the area in which the tool is being used.
- Ensure at all times that the working area is clear on all sides.
- When using stud drivers, ensure that you have a stable working position and maintain your balance at all times. Avoid working on ladders.
- Ensure that the working area is free from loose material and soiling at all times. Ensure good lighting in the working area and good ventilation in closed rooms.
- The tool must **not** be employed in an explosive or inflammable atmosphere.

2.6 Handling of Cartridges

- The cartridges to be used in the tool conform to hazardous goods class 1.4 S. The national regulations for the handling of the cartridges must be observed at all times.
- The cartridges may only be handled and used by certified personnel.
- Persons with poor eyesight, colour blindness or problems with reading must take special precautions in order to be able to distinguish between the cartridges of the different power classes.
- Do not exert force on the cartridges during loading and unloading of the tool.
- Always load the fastener element into the tool first, then the cartridges.
- Always remove the cartridge from the tool first before removing the fastener element.
- Never try to lever a cartridge out of the chamber. This could lead to detonation of the cartridge.
- Never leave unused cartridges lying around on working surfaces or on the floor.
- Keep the cartridges away from sources of heat and naked flames.
- Avoid bringing the cartridges into contact with acids, pickling solutions, oil and aromatic hydrocarbons.
- Never throw the cartridges.
- Never try to open the cartridges.
- On no account may the cartridges be used in firearms.
- Never expose the cartridges to mechanical forces (e.g. blows) or heat.
- Hard objects must not strike or rub against the cartridges or their base. This could lead to detonation of the cartridges.
- Cartridges must not be sent by post, packet or courier service.
- Cartridges must not be transported by public transport.

2 Safety Precautions

If the cartridge does not fire

- If a cartridge does not fire, proceed as follows:
 1. If the cartridge does not fire, press the fastener element opening firmly against the working surface for 30 seconds.
 2. If the cartridge has still not fired after this time, release the trigger and relieve the pressure on the tool while still hold the fastener element opening against the working surface. Lift the tool off the working surface, ensuring that it is not pointed towards yourself or other persons.
 3. Pull the cartridge strip up by one cartridge, thus bringing a new cartridge into firing position. Use the remaining charges of the cartridge strip. Then dispose of the strip in such a way that it cannot be used again.
- If the charges do not fire several times in succession or the fastener elements show significantly reduced penetration depths, proceed as follows:
 1. Stop work immediately.
 2. Remove the cartridge strip and fastener element from the tool.
 3. Dismantle the tool (see chapter 6.1).
 4. Inspect the piston body and piston guide for wear and replace, if necessary.
 5. Clean the tool (see chapter 6.2) and reassemble again (see chapter 6.3).
 6. If the problem continues to exist, stop work with the tool immediately. Mark the tool clearly as "DEFECTIVE - DO NOT USE" and store in a locked container. Contact your contract partner (see page 42).

2 Safety Precautions

2.7 Transport and Storage

NOTE

The cartridges to be used in the tool conform to hazardous goods class 1.4 S. The national regulations for the transport and storage of the cartridges must be observed at all times.

Never store, transport and hand over the Stud Driver in loaded condition and with a fastener element inserted.

Transport

- During transport, hard objects must not strike or rub against the cartridges or their base. This could lead to detonation of the cartridge.

Storage

- Always store the **unloaded** Stud Driver and the cartridges in locked containers separately from one another.
- Store the Stud Driver in a dry and locked location. The location must be secured against unauthorised access.
- The ambient and storage temperature must not be below -20 °C or above +35 °C for prolonged periods.

3 Description

3.1 General Product Description

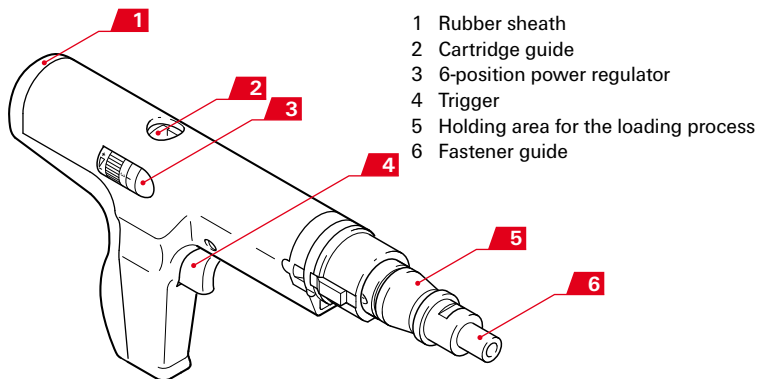
The Power Drive F35 Stud Driver is a safe tool that can be employed for a wide range of applications by professional, certified users.

The tool is intended for commercial use for fixing purposes by driving elements of the fischer accessories product range developed specially for this field of application into concrete, steel, solid brick and solid lime-sand brick.

Only fischer safety cartridges FSC 6.8/11 (0.27 inch) may be used to generate the propulsion gas. Fastening is performed directly through the part to be fixed into the anchoring substrate (base material). Predrilling of holes is not necessary.

The Stud Driver has a 6-position power regulator that allows the tool power to be optimally adapted to the intended application.

The low noise and minimum recoil increase the comfort for the operator and thus contribute significantly to higher productivity. The powder-driven system is completely portable so that it can be used even in confined spaces and at points with restricted access.



- 1 Rubber sheath
- 2 Cartridge guide
- 3 6-position power regulator
- 4 Trigger
- 5 Holding area for the loading process
- 6 Fastener guide

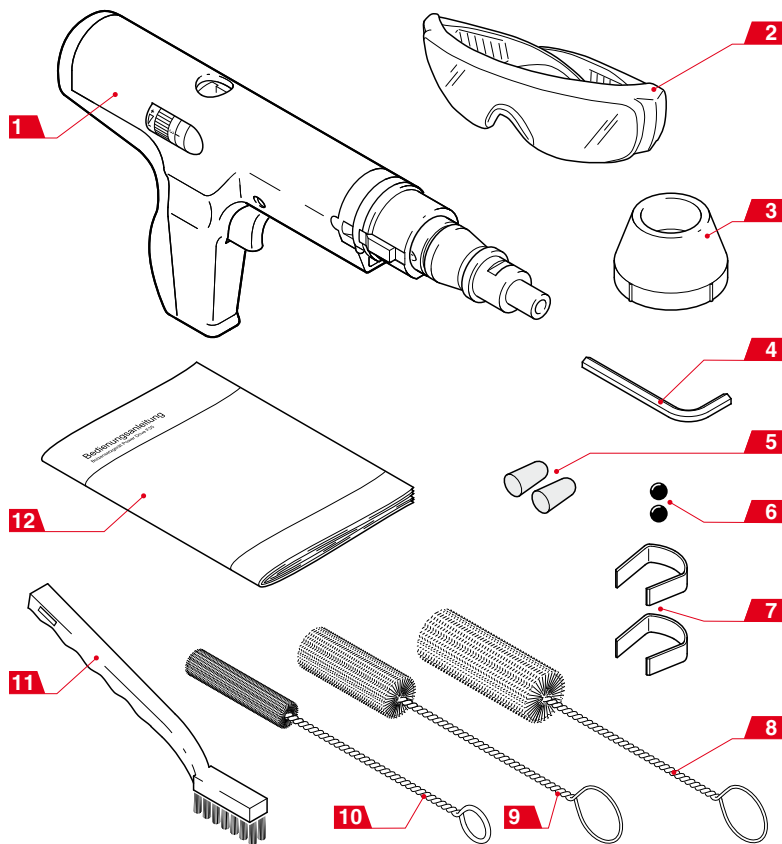
3.2 Technical Data

| | |
|---|--|
| Manufacturer | fischerwerke GmbH & Co. KG |
| Designation | Power Drive F35 Stud Driver |
| Weight | 2.35 kg |
| Tool length (maximum) | 340 mm |
| Maximum length of the fastener element | 62 mm (prenailing is necessary with longer elements) |
| Recommended maximum driving frequency | 500 fastener elements / hour |
| Cartridges | FSC GR (6.8/11 mm), green FSC YE (6.8/11 mm), yellow FSC RE (6.8/11 mm), red |
| Power control | 3 cartridge strengths 6-step power control by means of regulation knob |

3 Description

3.3 Scope of Supply

After unpacking, check the contents of the package. The following parts belong to the scope of supply of the tool:



- 1 Power Drive F35 Stud Driver
- 2 Goggles
- 3 Stabilizer
- 4 Allen key
- 5 Ear protectors
- 6 Steel balls (spare parts)

- 7 Clips (spare parts)
- 8 Round brush, large
- 9 Round brush, medium
- 10 Round brush, small
- 11 Wire brush
- 12 Operating manual

3 Description

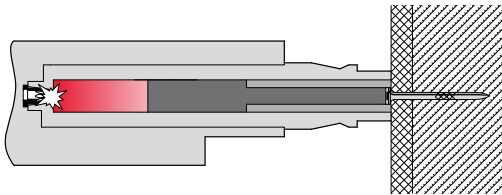
3.4 The Functional Principle

The tool functions on the basis of the piston principle. This technique ensures optimum working safety and reliable fixing solutions. In view of its design, the tool is a Class A Stud Driver in accordance with the German Firearms Act.

The Power Drive F35 Stud Driver operates on the indirect action principle. The firing of the cartridge creates a positive pressure in the combustion chamber. The positive pressure acts on the contained piston and is transformed into motion energy (kinetic energy). The piston transmits this kinetic energy directly to the fastener element (stud) inserted into the fastener guide, thus permitting a controlled penetration into the base material.

This principle allows the velocity of the fastener element (stud) to be reduced to less than 100 m/s, thus giving the system a very high degree of safety.

There is no risk of ricochets, as the piston is contained in the Stud Driver and the driven fastener element (stud) is thus prevented from becoming a projectile.



During reloading of the Stud Driver, the piston is moved back to its starting position (loading process). The cartridge strip is advanced at the same time. This enables quick, inexpensive and safe working for the operator.

3.5 Safety Devices

Drop protection

A possible ignition of the firing charge is prevented mechanically if the Stud Driver collides with a hard surface.

Contact protection

The Stud Driver must be pressed with the fastener element opening completely against the substrate before a stud can be driven.

Trigger protection

Simply pressing the trigger does not ignite the firing charge.

Firing protection

If the Stud Driver is pressed with the fastener element opening completely against the substrate with the trigger already pressed, the firing charge is not ignited.

4 Before Starting Work

Before working with the Stud Driver, it is essential that you familiarise yourself with the characteristics of the base material and of the fastener elements. The materials into which the fastener elements are to be driven must be analysed. The fastener elements, the cartridge and the setting of the 6-position power regulator are then selected on the basis of this analysis.

4.1 Analysis of the Base Material

For the work with the Stud Driver it is necessary to determine the characteristics of the base material into which the fastener element is to be driven by means of a penetration test.

- Try to drive the fastener element into the base material using a hammer. The base material is
 - **too soft** if the fastener element penetrates easily into the base material,
 - **too hard** if the fastener element becomes blunt,
 - **too brittle** if it breaks or cracks,
 - **suitable** if the fastener element remains sharp and leaves a deformation in the base material.

4.2 Selection of Appropriate Cartridge

The cartridges are distinguished according to their power classes and are correspondingly colour coded (see chapter 8.1).

Always test a fastener element first with cartridges of the lowest power class when working with a new base material. If the fastener element does not achieve the necessary penetration depth, try with the next higher power class until the required penetration depth is reached.

4.3 Selection of Appropriate Fastener Elements

Fixing in concrete

Effective anchoring depth (h_{ef})

For fixtures in concrete, the effective anchoring depth (h_{ef}) is the determining factor for the selection of the appropriate fastener element. The effective anchoring depth (h_{ef}) is dependent on the compressive strength of the concrete.

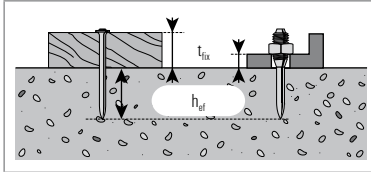
| Compressive strength of concrete | Effective anchoring depth (h_{ef}) |
|----------------------------------|--|
| C16/20 | 30 - 35 mm * |
| C20/25 | 25 - 30 mm * |
| C30/37 | 20 - 25 mm * |

* The values shown are indicative values. Several test fixings should be carried out in the base material to determine the exact values for the installation situation.

4 Before Starting Work

Correct shaft length of the fastener element

The correct shaft length (L) is determined by the thickness of the part to be fixed (t_{fix}) and the effective anchoring depth (h_{ef}) using the following formula:



$$L = t_{\text{fix}} + h_{\text{ef}}$$

For fixtures with stud bolts, the necessary shaft length corresponds to the effective anchoring depth (h_{ef}), the thickness of the part to be fixed (t_{fix}) does not have to be taken into consideration.

Fixing in steel

Effective anchoring depth (h_{ef})

For fixtures in steel, the effective anchoring depth (h_{ef}) is the determining factor for the selection of the appropriate fastener element. The effective anchoring depth (h_{ef}) is dependent on the tensile strength of the steel.

| Tensile strength of the steel (f_{tk}) | Effective anchoring depth (h_{ef}) |
|---|---|
| 360 N/mm ² | 12 mm |
| 510 N/mm ² | 10 mm |

* The values shown are indicative values. Several test fixings should be carried out in the base material to determine the exact values for the installation situation.

Correct shaft length of the fastener element

The correct shaft length (L) is determined by the thickness of the part to be fixed (t_{fix}) and the effective anchoring depth (h_{ef}). If proper penetration of the base material is desired, an allowance of 6 mm must be made (see following formulae).

Correct shaft length without penetration of the base material:

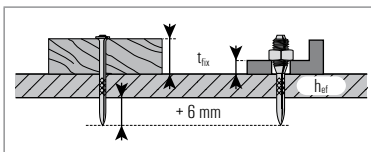
$$L = t_{\text{fix}} + h_{\text{ef}}$$

Correct shaft length with proper penetration of the base material:

$$L = t_{\text{fix}} + h_{\text{ef}} + 6 \text{ mm}$$

For fixtures with stud bolts, the necessary shaft length corresponds to the effective anchoring depth (h_{ef}) plus 6 mm allowance, the thickness of the part to be fixed (t_{fix}) does not have to be taken into consideration.

$$L = h_{\text{ef}} + 6 \text{ mm}$$



4 Before Starting Work

4.4 Guidelines for Fastening

The guidelines described below must be observed for fixtures in different base materials.

General

- Do not drive fastener elements into cast iron, aerated concrete, thin sheet metal (< 4 mm), ceramic tiles, hollow bricks, insulating materials, rock, copper, brass, bronze, plastic, marble or glass. These materials can splinter.
- Do not drive fastener elements into thin or easily penetrated material that is not backed by concrete, solid brick or steel (fixing of plasterboard or insulating panels). If the base material is completely covered and therefore not visible, ensure for safety reasons that there is a suitable base material before driving each stud (see chapter 4.1).

DANGER!



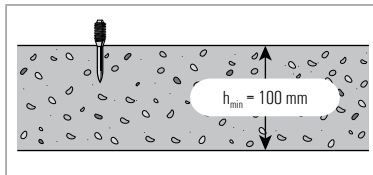
Openings and recesses in the base material that are covered by parts to be fixed and that are therefore invisible to the operator pose a particular risk.

- ▶ *Check the base materials by means of a penetration test (see chapter 4.1) before driving each stud.*

Concrete

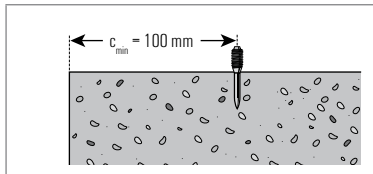
The following guidelines apply for the installation of fastener elements in concrete.

Minimum base material thickness (h_{\min})



The minimum thickness (h_{\min}) of concrete base material must be 100 mm.

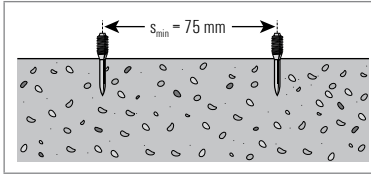
Minimum distance from edge (c_{\min})



The minimum distance from the edge (c_{\min}) must be 100 mm. If a smaller distance is necessary, carry out a test fixing first, as the edge may break away.

4 Before Starting Work

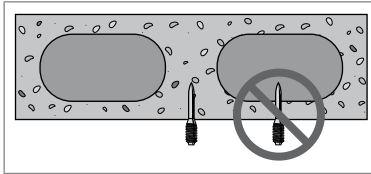
Minimum distance between centres (s_{\min})



The minimum distance between centres (s_{\min}) of the fastener elements must be 75 mm.

If a smaller distance is necessary, carry out a test fixing first, as the area between the fastener elements may break away.

Hollow prestressed concrete plate ceilings

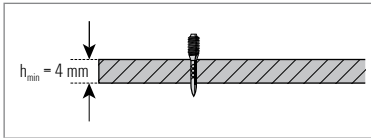


When installing fastener elements in hollow prestressed concrete plate ceilings, drive in the fastener elements between the chambers to achieve maximum fixing strength.

Steel

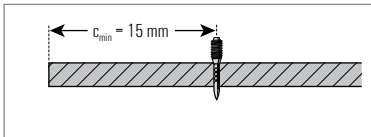
The following guidelines apply for the installation of fastener elements in structural steel, whereby the tip penetrates completely through the structural steel part. For the installation of fastener elements in high-strength structural steel, or for applications where the tip does not penetrate through the structural steel part or the structural steel part is thicker than 10 mm, we recommend that a penetration test is carried out (see chapter 4.1).

Minimum base material thickness (h_{\min})



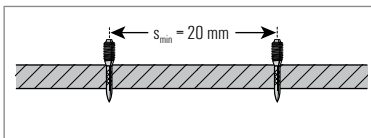
The minimum thickness (h_{\min}) of steel base material must be 4 mm.

Minimum distance from edge (c_{\min})



The minimum distance from the edge (c_{\min}) must be 15 mm.

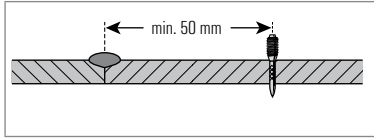
Minimum distance between centres (s_{\min})



The minimum distance between centres (s_{\min}) of the fastener elements must be 20 mm.

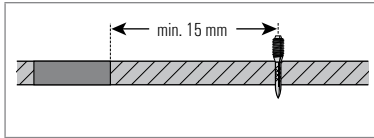
4 Before Starting Work

Distance from weld seams



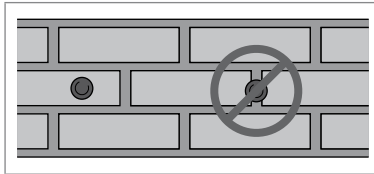
The minimum distance from weld seams must be 50 mm.

Distance from holes



The minimum distance from holes in the base material must be 15 mm.

Masonry



For installation in masonry, the fastener element must always be driven into the brick (solid brick). The minimum distances indicated in this chapter for concrete must be observed. Fixtures in masonry joints are not permitted.

5 Operation

5.1 Handling

DANGER!



If not used for the intended purpose the tool, the associated anchoring and fastener elements and the accessories available as options can pose a considerable source of danger for the operator and other persons in the vicinity.

- ▶ *Before using the Stud Driver, be sure to read the safety precautions described in chapter 2 and observe these at all times.*
- Before putting the tool into operation, ensure that it is completely empty and that there is neither a cartridge nor a fastener element in the Stud Driver.
- Check the tool for proper function and operability, see function check in chapter 6.4.
- Never put the tool into operation if it is not in proper working order, if you have any doubts about the proper function or if parts of the tool are damaged. Damaged parts must be replaced immediately. In such cases, please contact your contract partner.

Preparing the tool for stud driving

- Do **not** direct the tool towards yourself or other persons in the vicinity.

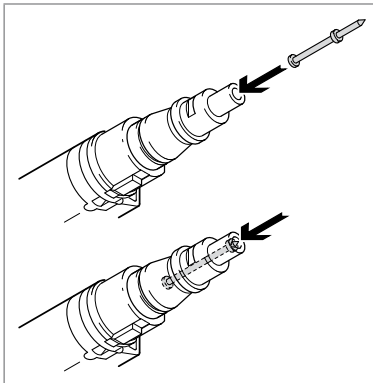
DANGER!



In the event of an unintentional firing, the piston or the fastener element can be driven through your hand or other parts of the body that may be in front of the fastener element opening.

- ▶ *Never place your fingers or the whole hand in front of the fastener element opening. Always point the tool away from yourself and other persons.*
- Remove any cartridges from the tool.

Insert the fastener element



- Hold the tool with the fastener element opening facing upwards.
- Insert the fastener element head-first completely into the fastener guide.

5 Operation

NOTE



It should be possible to insert the fastener element without force. If it should be difficult to insert the element, check the compatibility of the fastener element with the tool and the condition of the guide disc on the fastener element. If necessary, use a different fastener element.

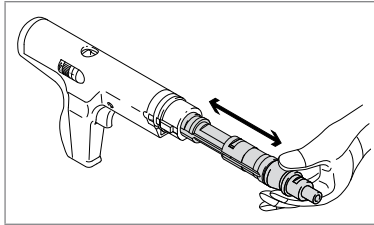
Reloading of the tool

CAUTION!



Incorrect handling may result in crushing or burning of the hands.

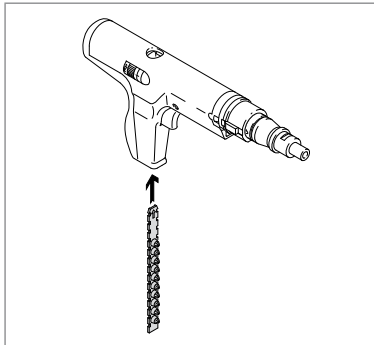
- ▶ *Hold the cylinder only around the front outside end as shown. Always wear protective gloves when working with the tool. On no account reach behind the cone.*



- Pull the cylinder at the front end out of the guide up to the stop as illustrated, then push it in again completely. This operation moves the piston back to its starting position and the cartridge is advanced.

Insert cartridge strip

Load a new cartridge strip always **after** the reloading process. If the cartridge strip is inserted before the fastener element is loaded or before the reloading process, the first cartridge will not fire.



- Insert the cartridge strip into the cartridge guide in the handle from below as illustrated.
- Push the cartridge strip into the guide until the lower end is flush with the underside of the handle.

Inserting a partially used cartridge strip:

- Insert the cartridge strip from below and pull out from above until the first functional cartridge is in firing position.

DANGER!



The tool is now ready for operation. The safety device in the tool is released if the Stud Driver is pressed against an object. Observe the safety precautions in chapter 2.

- ▶ *Never direct the loaded tool towards any part of your body or towards another person. Handle the loaded tool with the greatest care!*

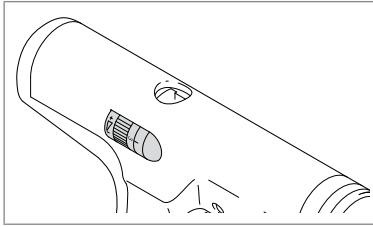
5 Operation

Setting the power regulator

The force acting on the fastener element can be adjusted by turning the 6-position power regulator on the right-hand side of the housing.

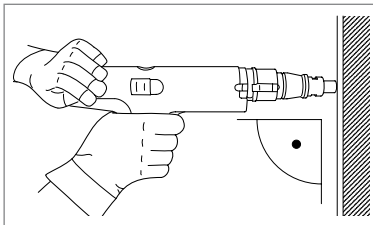
Position 1 = Lowest force

Position 6 = Highest force

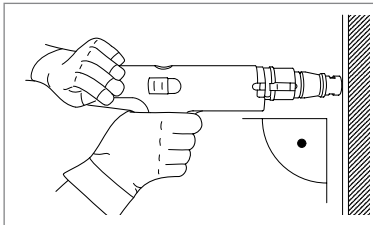


- Check the setting of the 6-position power regulator and adapt it to your intended application, if necessary.

Stud driving



- Ensure that you have a stable working position.
- Wear protective gloves when working with the tool.
- Hold the tool perpendicularly to the substrate into which the fastener element is to be driven.



- Press the tool firmly against the substrate with bent arms until the fastener guide is completely pushed in.
- Press the trigger.
- Retract the tool from the substrate immediately after driving the stud to prevent overheating.

DANGER!



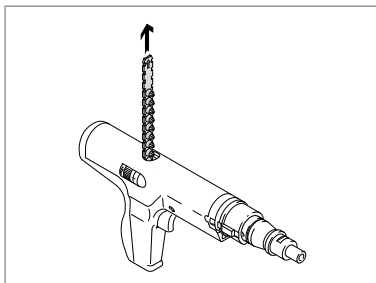
Inappropriate handling while trying to unload a jammed or defective Stud Driver may result in a cartridge firing.

- ▶ Always point the tool away from yourself and other persons when unloading.

- Prepare the tool for driving the next stud by inserting a new fastener element and reloading the tool.
- The cartridge strip is advanced during the reloading process.
- Remove the cartridge strip when all the cartridges have been fired.

5 Operation

Remove the cartridge strip



- Pull the cartridge strip out from above.
- If necessary, insert a new cartridge strip as described above.

Remove the cartridge strip after finishing work.
Ensure that no fastener element remains in the tool.

6 Service and Maintenance

Service and maintenance of the tool entails dismantling and cleaning the moving parts at regular intervals.

Use commercially available weapon oil and the cleaning brushes supplied with the tool.

If the tool is used every day, it must also be serviced and maintained every day. Even when it is not in use, the service and maintenance steps described here should be carried out at least every 6 months.

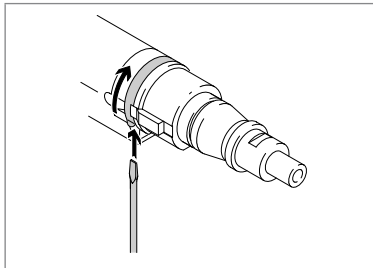
6.1 Dismantling the Tool

DANGER!

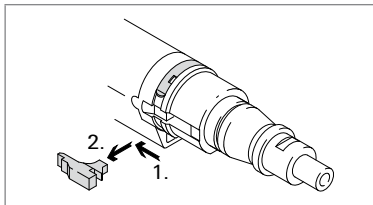


Working on a loaded Stud Driver can result in very serious or even fatal injuries.

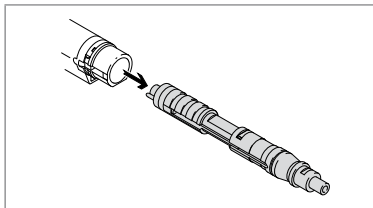
- ▶ *Ensure that the Stud Driver contains no cartridges and/or fastener elements before starting dismantling.*



- Prise up the angled end of the annular ball spring with a screwdriver and twist up the annular ball spring.
- Replace the annular ball spring if it is damaged.

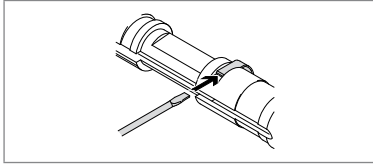


- Pull the piston stop back slightly and then remove.



- Pull the assembly of piston assembly guide, piston, baseplate and fastener guide out of the housing from the front.

6 Service and Maintenance



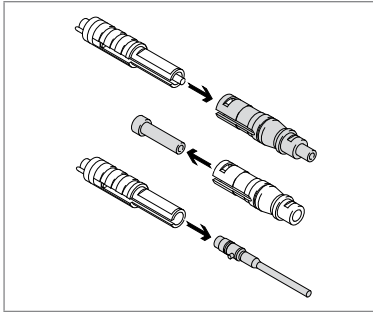
- Remove the clip from the baseplate.
- Replace the clip if it is damaged.

CAUTION!



Damage to individual parts can result in jamming of the tool. A jammed Stud Driver represents a high safety risk.

► *Pay attention during dismantling that none of the parts are damaged, e.g. by being dropped. Ensure that the damaged parts are replaced before the tool is used again.*



- Pull the baseplate off the piston assembly guide.
- Remove the fastener guide from the baseplate.
- Pull the piston out of the piston assembly guide.
- Inspect all parts for wear and / or damage and replace, if necessary.

Piston:

The piston is a wear part. If signs of wear are discovered, it must be replaced.

Spare parts:

Please note that only the spare parts listed in the table on page 39 may be replaced by certified operators and contract partners. For all other parts, please contact the manufacturer or an authorised agent.

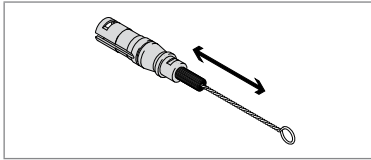
6 Service and Maintenance

6.2 Cleaning the Individual Parts

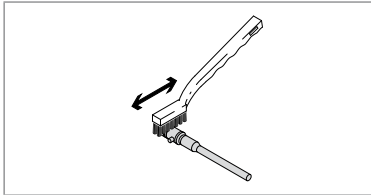
CAUTION! *Health-endangering dust and dirt may be produced during cleaning.*



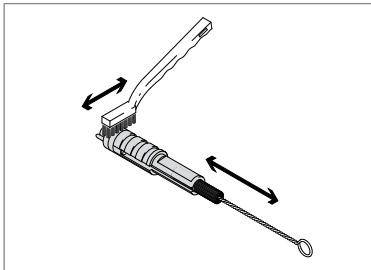
- ▶ *Wear goggles and a face mask while cleaning.*
- ▶ *Do not clean the tool in the vicinity of foodstuffs.*
- ▶ *Do not use spray guns or steam sprays for cleaning.*
- ▶ *Wash your hands thoroughly after completing cleaning.*



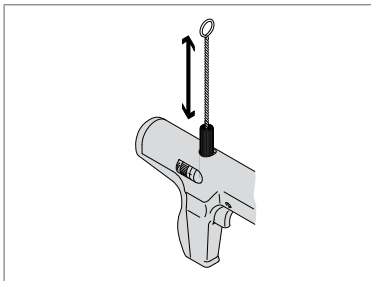
- Clean the inside of the baseplate using commercially available weapon oil and the medium round brush.



- Clean the piston body using commercially available weapon oil and the wire brush supplied.

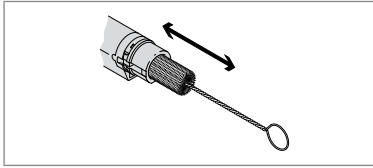


- Clean the piston assembly guide on the inside and outside using commercially available weapon oil and the wire brush and medium round brush supplied.



- Clean the inside of the cartridge guide using commercially available weapon oil and the small round brush.

6 Service and Maintenance



- Clean the inside of the tool using commercially available weapon oil and the large round brush.

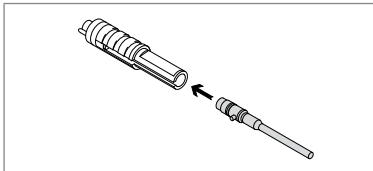
CAUTION!

Excessive oil on the components can bind dust and dirt and result in increased wear.

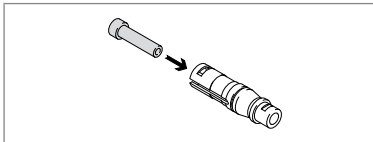


► After cleaning, remove excess oil from the parts using a clean lint-free rag or cloth.

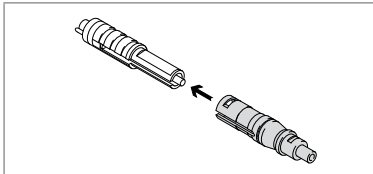
6.3 Assembling the Tool



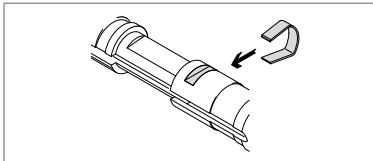
- Insert the piston body into the piston assembly guide. Ensure that the piston body fits precisely and completely into the piston assembly guide.



- Insert the fastener guide into the baseplate.
- Check that the fastener guide can move freely.



- Push the baseplate with the inserted fastener guide completely over the piston assembly guide with the inserted piston.
- Ensure that the grooves of the two parts are aligned with one another.



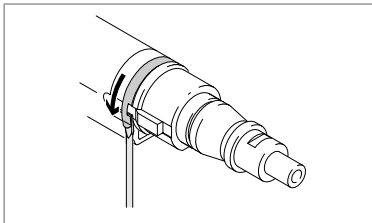
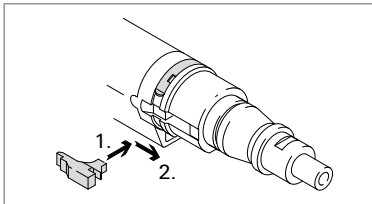
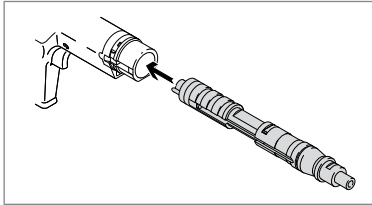
- Push the clip over the baseplate at the intended position until it fits flush against the baseplate.

NOTE

In order to simplify fitting, you can move the baseplate slightly back and forth on the piston assembly guide.



6 Service and Maintenance



- Push the complete assembly of piston assembly guide, piston, baseplate and fastener into the Stud Driver from the front.
- Ensure that the common groove of the assembly is facing towards the right-hand side of the Stud Driver is driving direction.
- Insert the piston stop into the groove on the right-hand side of the tool and push it forward slightly.
- Raise the end of the annular ball spring with a screwdriver and pull the annular ball spring down over the groove with the inserted piston stop.

6.4 Function Check

CAUTION!

The tool must be completely unloaded for the following function check.

- ▶ *Ensure that there is neither a cartridge nor a fastener element in the Stud Driver.*



After assembly, check that the tool is functioning correctly. To do this, actuate the Stud Driver several times after assembly.

- Press the Stud Driver with the fastener element opening against a hard surface.
- Observe whether the fastener guide can be moved when normal pressure is applied.
- Press the trigger.
- The clicking of the firing pin must be clearly audible.
- If the tool does not function as described, check whether it has been assembled correctly.

7 Troubleshooting

The Power Drive F35 Stud Driver is designed and constructed for trouble-free operation. During day-to-day use, faults can occur due to incorrect settings, unsuitable base materials or fastener elements or cartridges not suitable for the intended application.

DANGER!



Spontaneous and rash reactions to a fault can lead to very serious or even fatal injuries!

- ▶ *Be sure to observe the safety precautions given in chapter 2.*
- ▶ *Read the remedies for the prevailing fault described in this chapter through completely.*

Overview of Possible Faults:

| Chapter | Description of fault | Measures see page |
|---------|--|-------------------|
| 7.1 | Cartridge strip is not transported | 28 |
| 7.2 | Cartridge strip cannot be removed | 28 |
| 7.3 | Cartridge is not fired | 28 |
| 7.4 | Cartridge strip is deformed or melts | 29 |
| 7.5 | Cartridge falls out of the cartridge strip | 29 |
| 7.6 | Stud Driver binds | 29 |
| 7.7 | Piston assembly guide can be opened too easily | 29 |
| 7.8 | Piston assembly guide is too difficult to open | 30 |
| 7.9 | Tool cannot be dismantled or reloaded | 30 |
| 7.10 | Fastener guide jams and does not extend again after stud driving | 30 |
| 7.11 | Cartridge is not fired even though the fastener element opening is pressed fully against the surface and then the trigger is pulled. | 30 |
| 7.12 | Cartridge fires, but fastener element is not driven | 31 |
| 7.13 | Stud Driver cannot be pressed completely against the surface | 31 |
| 7.14 | Insertion depths deviate widely | 31 |
| 7.15 | Fastener element penetrates too deeply | 32 |
| 7.16 | Fastener element does not penetrate deeply enough | 32 |
| 7.17 | Fastener element bends | 32 |
| 7.18 | Concrete splinters | 33 |
| 7.19 | Head of fastener element is damaged | 33 |
| 7.20 | Fastener element does not penetrate into the surface | 33 |
| 7.21 | Fastener element does not hold in the base material | 34 |
| 7.22 | Fastener element breaks | 34 |
| 7.23 | Head of the fastener element penetrates through the material to be fixed (sheet metal) | 34 |

NOTE



If a fault cannot be remedied following the remedial measures described here, use of the tool must be stopped immediately. Mark the tool clearly as "DEFECTIVE - DO NOT USE" and store in a locked container. Contact your contract partner (see page 42).

7 Troubleshooting

7.1 Cartridge strip is not transported

Causes and remedial measures:

- Cartridge strip is damaged
 - ▶ *Replace cartridge strip.*
- Cartridge guide is soiled
 - ▶ *Clean cartridge guide.*
- Stud Driver is defective
 - ▶ *Contact contract partner, observe note on page 27.*

7.2 Cartridge strip cannot be removed

DANGER!



Removing cartridges from the cartridge strip or Stud Driver by force may result in detonation of the cartridge.

- ▶ *Never try to remove cartridges from the cartridge strip or Stud Driver by force.*

Causes and remedial measures:

- Stud Driver has overheated due to intensive use.
 - ▶ *Allow the tool to cool down.*
 - ▶ *Then carefully remove the cartridge strip. If the cartridge strip cannot be removed, contact your contract partner, observe note on page 27.*
 - ▶ *Observe maximum stud driving frequency (see chapter 3.2).*

7.3 Cartridge is not fired

DANGER!



Removing cartridges from the cartridge strip or Stud Driver by force may result in detonation of the cartridge.

- ▶ *Never try to remove cartridges from the cartridge strip or Stud Driver by force.*

Causes and remedial measures:

- Cartridge is defective
 - ▶ *Pull the cartridge strip up by one cartridge out of the tool by hand as described in chapter 5.*
- Soiling in the tool.
 - ▶ *Clean tool.*

7 Troubleshooting

7.4 Cartridge strip is deformed or melts

DANGER!



Removing cartridges from the cartridge strip or Stud Driver by force may result in detonation of the cartridge.

- ▶ *Never try to remove cartridges from the cartridge strip or Stud Driver by force.*

CAUTION!



Risk of burns when working on hot parts.

- ▶ *Always wear protective gloves for dismantling of the overheated tool.*

Causes and remedial measures:

- Tool is pressed against the surface for too long during the stud driving process and overheats.
 - ▶ *Remove the cartridge strip.*
 - ▶ *Dismantle the tool to allow it to cool down rapidly and avoid possible damage. If the tool cannot be dismantled, contact your contract partner, observe note on page 27.*

Press the tool against the surface only just before pressing the trigger and retract again immediately after firing.

7.5 Cartridge falls out of the cartridge strip

Causes and remedial measures:

- Stud driving frequency too high.
 - ▶ *Stop using the tool immediately.*
 - ▶ *Remove the cartridge strip.*
 - ▶ *Allow the tool to cool down.*
 - ▶ *Dismantle and clean the tool to remove the lost cartridge. If the tool cannot be dismantled, contact your contract partner, observe note on page 27.*

Observe maximum stud driving frequency (see chapter 3.2).

7.6 Stud Driver binds

Causes and remedial measures:

- Soiling in the tool.
 - ▶ *Clean tool.*

7.7 Piston assembly guide can be opened too easily

Causes and remedial measures:

- Clip and/or steel ball worn.
 - ▶ *Replace clip and/or steel ball.*

7 Troubleshooting

7.8 Piston assembly guide is too difficult to open

Causes and remedial measures:

- Clip bent.
 - ▶ *Replace clip.*
- Soiling in the tool.
 - ▶ *Clean tool.*
- Piston stop damaged.
 - ▶ *Replace piston stop.*
- Foreign matter trapped between piston body and piston guide.
 - ▶ *Dismantle tool and carefully remove foreign matter.*

7.9 Tool cannot be dismantled or reloaded

Causes and remedial measures:

- Soiling in the tool.
 - ▶ *Clean tool.*
- Piston body damaged or bent.
 - ▶ *Inspect piston body, piston guide and piston stop for wear and replace, if necessary.*
- If the fault cannot be remedied, contact your contract partner, observe note on page 27.

7.10 Fastener guide jams and does not extend again after stud driving

Causes and remedial measures:

- Soiling in the tool.
 - ▶ *Pull fastener guide out of the tool by hand.*
 - ▶ *Clean tool.*
- If the fault cannot be remedied, contact your contract partner, observe note on page 27.

7.11 Cartridge is not fired even though the fastener element opening is pressed fully against the surface and then the trigger is pulled

Causes and remedial measures:

- Cartridge has been fired or has mis-fired.
 - ▶ *Reload tool.*
- Firing pin is damaged or missing.
 - ▶ *Contact your contract partner as the firing pin may only be replaced by the manufacturer or an authorised agent. Observe note on page 27.*

7 Troubleshooting

7.12 Cartridge fires, but fastener element is not driven

Causes and remedial measures:

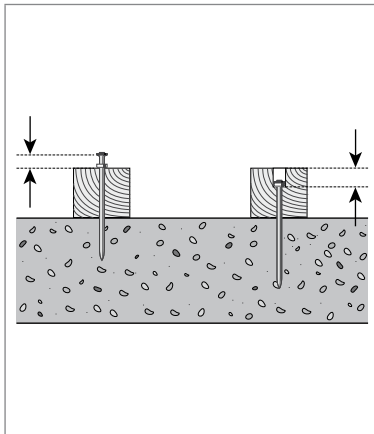
- No fastener element inserted into the fastener guide.
 - ▶ *Insert appropriate fastener element into the fastener guide.*
- Piston body in wrong position.
 - ▶ *Remove the cartridge strip.*
 - ▶ *If the fault continues to exist, clean the tool, inspect the piston stop and replace, if necessary.*

7.13 Stud Driver cannot be pressed completely against the surface

Causes and remedial measures:

- Parts of the fastener and piston guide were incorrectly assembled.
 - ▶ *Dismantle parts of the fastener and piston guide, inspect for wear and/or incorrect assembly and replace, if necessary.*
- Firing pin parts and/or firing device damaged.
 - ▶ *Contact your contract partner as the firing pin parts and firing device may only be replaced by the manufacturer or an authorised agent. Observe note on page 27.*

7.14 Insertion depths deviate widely

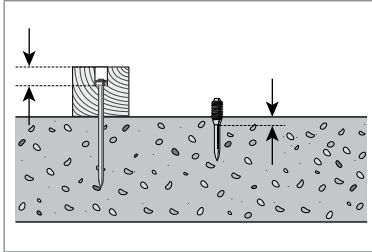


Causes and remedial measures:

- Piston body in wrong position.
 - ▶ *Remove the cartridge strip.*
 - ▶ *Push piston body completely back (reload tool, see chapter 5.1).*
 - ▶ *If the problem continues to exist:*
 - *Check position of the 6-position power regulator.*
 - *Check cartridge and fastener material for suitability.*
 - *Check whether, for example, fillers or a reinforcement element in the concrete was contacted.*
 - *Clean tool.*
 - *Inspect the piston stop and replace, if necessary.*

7 Troubleshooting

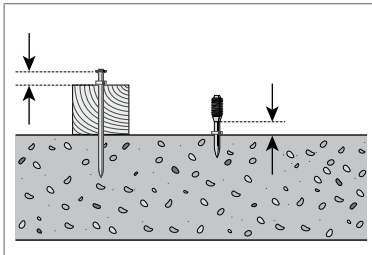
7.15 Fastener element penetrates too deeply



Causes and remedial measures:

- Fastener element too short for application.
 - ▶ *Select a longer fastener element.*
- Driving power too high.
 - ▶ *Set 6-position power regulator to a lower power.*
 - ▶ *Use a cartridge with a lower power class.*

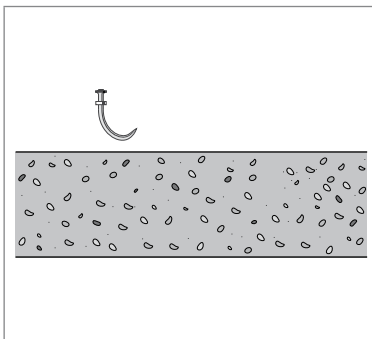
7.16 Fastener element does not penetrate deeply enough



Causes and remedial measures:

- Fastener element too long for application.
 - ▶ *Select a shorter fastener element.*
- Driving power too low.
 - ▶ *Set 6-position power regulator to a higher power.*
 - ▶ *Use a cartridge with a higher power class.*

7.17 Fastener element bends

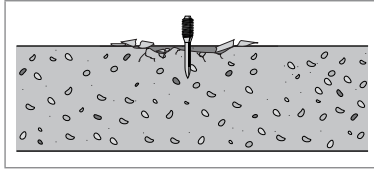


Causes and remedial measures:

- Hard and/or large fillers in the concrete.
- Reinforcement very close to the concrete surface.
- Hard surface (steel).
 - ▶ *Use a shorter fastener element.*
 - ▶ *Ensure that the tool is held perpendicularly to the working surface.*
 - ▶ *Move the fastener element at least 75 mm further away and repeat the stud driving process.*

7 Troubleshooting

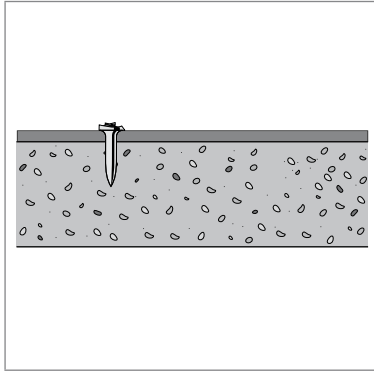
7.18 Concrete splinters



Causes and remedial measures:

- High-strength concrete.
- Hard and /or large fillers in the concrete.
- Old concrete.
 - ▶ *Select a shorter fastener element.*

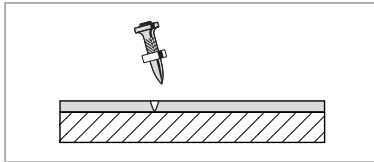
7.19 Head of fastener element is damaged



Causes and remedial measures:

- Driving power too high.
 - ▶ *Set 6-position power regulator to a lower power.*
 - ▶ *Use a cartridge with a lower power class.*
- Fastener element and piston body do not match.
 - ▶ *Match fastener element and piston body.*
- Piston body worn.
 - ▶ *Inspect piston body for wear and replace, if necessary.*

7.20 Fastener element does not penetrate into the surface

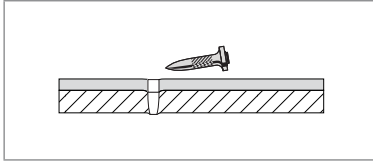


Causes and remedial measures:

- Driving power too low.
 - ▶ *Set 6-position power regulator to a higher power.*
 - ▶ *Use a cartridge with a higher power class.*

7 Troubleshooting

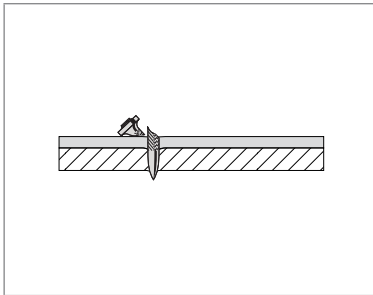
7.21 Fastener element does not hold in the base material



Causes and remedial measures:

- Base material of steel and too thin.
 - ▶ Set 6-position power regulator to a different value.
 - ▶ Use a cartridge with a different power class.

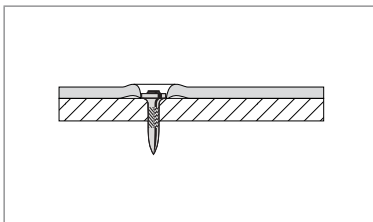
7.22 Fastener element breaks



Causes and remedial measures:

- Driving power too low.
 - ▶ Set 6-position power regulator to a higher power.
 - ▶ Use a cartridge with a higher power class.
- Fastener element too long.
 - ▶ Select a shorter fastener element.
- Base material too hard for this application.

7.23 Head of the fastener element penetrates through the material to be fixed (sheet metal)



Causes and remedial measures:

- Driving power too high.
 - ▶ Set 6-position power regulator to a lower power.
 - ▶ Use a cartridge with a lower power class.
 - ▶ Use fastener element with a washer.

8 Consumables

8.1 Safety Cartridge Strips

FSC safety cartridge strips

Cartridges with 3 different power classes are available for the fischer Power Drive F35 Stud Driver. The cartridges can be distinguished by their colour.

CAUTION!



The cartridge strips have a specific length so that it is clear at all times whether or not the tool is loaded.

► *On no account should the cartridge strips be shortened.*

The power class of the fischer safety cartridges is shown as a number (3, 4, 6) on each cartridge package. The higher the number, the higher the power class. The power class is also indicated by the colour of the package, the label, a colour mark on the tip of each cartridge and the plastic strip.

For users with colour blindness, a combination of numbers and colours is used on the package.

| Product designation | Art. No. | Size [mm] | Size [inch] | Colour of the cartridges | Power of the cartridges [DIN] | Power class [DIN / ANSI] | UNIT |
|---------------------|---------------|-----------|-------------|--------------------------|-------------------------------|--------------------------|----------------|
| FSC GR | 510222 | 6,8/11 | .27 | green | Low charge | 3 / 3 | 100 cartridges |
| FSC YE | 510223 | 6,8/11 | .27 | yellow | Medium charge | 4 / 4 | 100 cartridges |
| FSC RE | 510225 | 6,8/11 | .27 | red | Very high charge | 6 / 5 | 100 cartridges |

8 Consumables

8.2 Fastener elements

Studs with smooth shaft (FN)

Steel head: 8.15 mm x 1.7 mm

Shaft diameter: 3.7 mm

The FN stud is intended for the permanent fixing of fasteners in concrete, certain types of masonry and structural steel.

The studs have an 8 mm washer over their tip to hold the stud in the fastener guide so that it remains centered during the application.



| Product designation | Art. No. | Shaft type | Shaft length [mm] | Max. thickness of part to be fixed (t_{fix}) in concrete C16/20 [mm] | Max. thickness of part to be fixed (t_{fix}) in concrete C20/25 [mm] | Max. thickness of part to be fixed (t_{fix}) in concrete C30/37 [mm] | Max. thickness of part to be fixed (t_{fix}) in steel f_{yk} 360-510 [mm] |
|---------------------|---------------|------------|-------------------|--|--|--|---|
| FN 19 | 510155 | smooth | 19 | - | - | - | 7 |
| FN 22 | 510156 | smooth | 22 | - | - | 2 | 10 |
| FN 27 | 510157 | smooth | 27 | - | 2 | 7 | 15 |
| FN 32 | 510158 | smooth | 32 | 2 | 7 | 12 | 20 |
| FN 37 | 510159 | smooth | 37 | 7 | 12 | 17 | 25 |
| FN 42 | 510160 | smooth | 42 | 12 | 17 | 22 | 30 |
| FN 47 | 510161 | smooth | 47 | 17 | 22 | 27 | 35 |
| FN 52 | 510162 | smooth | 52 | 22 | 27 | 32 | 40 |
| FN 57 | 510163 | smooth | 57 | 27 | 32 | 37 | 45 |
| FN 62 | 510164 | smooth | 62 | 32 | 37 | 42 | 50 |
| FN 72* | 510165 | smooth | 72 | 42 | 47 | 52 | 60 |
| FN 97* | 510166 | smooth | 97 | 72 | 72 | 77 | 85 |

* These fastener elements exceed the maximum useful length of the fastener guide and have to be preloaded.

8 Consumables

Studs with knurled shaft (FNS)

Steel head: 8.15 mm x 1.7 mm

Shaft diameter: 3.7 mm

Function as for stud FN, but with knurled shaft for higher holding force in steel.



| Product designation | Art. No. | Shaft type | Shaft length [mm] | Max. thickness of part to be fixed (t_{fix}) in concrete C16/20 [mm] | Max. thickness of part to be fixed (t_{fix}) in concrete C20/25 [mm] | Max. thickness of part to be fixed (t_{fix}) in concrete C30/37 [mm] | Max. thickness of part to be fixed (t_{fix}) in steel f_{tk} 360-510 [mm] |
|---------------------|---------------|------------|-------------------|--|--|--|---|
| FNS 16 | 510167 | knurled | 16 | - | - | - | 4 |
| FNS 19 | 510168 | knurled | 19 | - | - | - | 7 |

NOTE

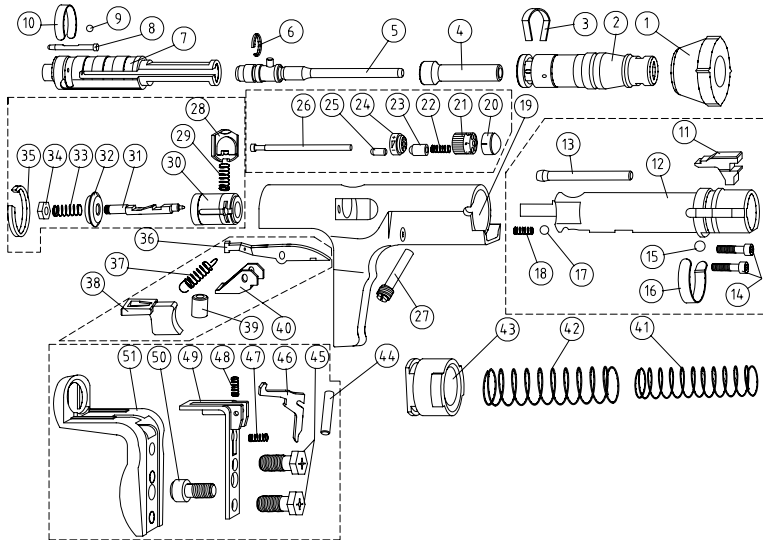


The values for the maximum thickness of the parts to be fixed shown in chapter 8.2 are indicative values.

Several test fixings should be carried out in the base material to determine the exact values for the installation situation.

Further information on the extensive range of fischer fastener elements is available from your contract partner or directly from the manufacturer.

9 Overview of Spare Parts



NOTE



Please note that only the spare parts listed in the table on page 39 may be replaced by certified operators and contract partners. For all other parts, please contact the manufacturer or an authorised agent.

| Item | Spare part No. | Description |
|------|----------------|-------------------------------|
| 1 | 510003 | Stabilizer |
| 2 | 510004 | Baseplate 2/S-13 Standard |
| 3 | 510005 | Shear clip |
| 4 | 510006 | Fastener guide 2/F-3 Standard |
| 5 | 510007 | Piston with ring - standard |
| 6 | 510008 | Piston ring |
| 7 | 510009 | Piston guide |
| 8 | 510010 | Regulation pin |
| 9 | 510011 | 1/8" steel ball |
| 10 | 510012 | C clip for piston guide |
| 11 | 510013 | Piston stop |
| 12 | 510014 | Steel liner assembly |
| 13 | 510015 | Pressure pin |
| 14 | 510016 | Front Allen cap screw M6x25 |
| 15 | 510017 | Steel ball |
| 16 | 510018 | Annular ball spring |
| 17 | 510019 | Strip pressure ball |
| 18 | 510020 | Compression spring |
| 19 | 510021 | Housing |

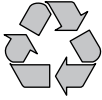
9 Overview of Spare Parts

| Item | Spare part No. | Description |
|------|----------------|--------------------------------|
| 20 | 510022 | Decorative bullet head |
| 21 | 510023 | Regulation knob |
| 22 | 510024 | Compression spring |
| 23 | 510025 | Snap for knob head |
| 24 | 510026 | Advance lever guide |
| 25 | 510027 | Release lever pin |
| 26 | 510028 | Release lever pin |
| 27 | 510029 | Threaded pin |
| 28 | 510030 | Sear |
| 29 | 510031 | Compression spring |
| 30 | 510032 | Spring guide |
| 31 | 510033 | Firing pin |
| 32 | 510034 | Spring detent |
| 33 | 510035 | Compression spring |
| 34 | 510036 | Firing pin nut |
| 35 | 510037 | Retention ring |
| 36 | 510038 | Release lever |
| 37 | 510039 | Advance lever spring |
| 38 | 510040 | Trigger |
| 39 | 510041 | Advance lever bushing |
| 40 | 510042 | Advance lever guide |
| 41 | 510043 | Firing pin spring (left-hand) |
| 42 | 510044 | Firing pin spring (right-hand) |
| 43 | 510045 | End cap |
| 44 | 510046 | Release lever pin |
| 45 | 510047 | Front cap screw |
| 46 | 510048 | Release lever |
| 47 | 510049 | Compression spring |
| 48 | 510050 | Compression spring |
| 49 | 510051 | Support strip assembly |
| 50 | 510052 | Handle Allen screw |
| 51 | 510053 | Rubber grip |

Spare parts that may be replaced by certified operators and contract partners

| Item | Spare part No. | Description |
|------|----------------|-------------------------------|
| 1 | 510003 | Stabilizer |
| 2 | 510004 | Baseplate 2/S-13 Standard |
| 3 | 510005 | Shear clip |
| 4 | 510006 | Fastener guide 2/F-3 Standard |
| 5 | 510007 | Piston with ring - standard |
| 11 | 510013 | Piston stop |
| 15 | 510017 | Steel ball |
| 16 | 510018 | Annular ball spring |
| 7-10 | 510054 | KIT 1: Piston guide assembly |

10 Disposal



Recycle the tool in accordance with the recycling regulations applicable in your country.

A precondition for the recyclability is the separation of the materials used. Dismantle the tool as far as possible without the use of special tools and separate the individual components as follows:

| Component | Material | Disposal via |
|----------------|--|--|
| Transport case | Plastic | Plastic recycling |
| Rubber sheath | Plastic | Plastic recycling |
| Baseplate | Steel | Scrap metal |
| Piston guide | Steel | Scrap metal |
| Piston body | Steel | Scrap metal |
| Fastener guide | Steel | Scrap metal |
| Trigger | Plastic | Plastic recycling |
| Small parts | Steel | Scrap metal |
| Cartridges | Steel / Brass / plastic / black powder | In accordance with the local regulations |

11 CIP Test Certification



The fischer Power Drive F35 Stud Driver is type-approved and system-tested. The tool therefore bears the approval symbol of the PTB in square form with the approval number S 818. fischer thereby guarantees the conformity with the approved design. Faults discovered during use must be reported to the responsible head of the approvals authority (PTB) and to the office of the Permanent International Commission for Firearms Testing (C.I.P.).

12 Note for Germany



In accordance with the General Ordinance on the Firearms Act in German (BeschussV), the operator of a *“device in which propellant charges contained in sleeves are used for operation”* is obliged to have the tool inspected every two years by the manufacturer or an authorised agent.

The additional test symbol (see figure) indicates the date from which the tool is approved for use. It indicates the year and quarter of sale or of the last recurring inspection. The year is shown in the small square and the quarter in the triangle facing towards the muzzle. The symbol loses its validity two years after the quarter shown. The tool must then be submitted to the manufacturer or an authorised agent for repeat inspection.

In the event of major malfunctions, the tool must be submitted for inspection before this date or disposed of in a safe manner.

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