



Instruction manual

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ESN 50

Electro-hydraulic Handtool

This Instruction manual contains the following modules

Contents	CON-00019-EU 01/2011
(1) Safety	SAF-00019-EU 01/2011
(2) General	GEN-00019-EU 01/2011
(3) Specifications	SPC-00019-EU 01/2011
(4) Description/Operation	DOP-00019-EU 01/2011
(5) Transport/Waste Disposal	TRW-00019-EU 01/2011
(6) Service/Certificates	SCE-00019-EU 01/2011

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Contents





Contents



(1) Safety

Symbols	1-2
SafetyInstructions	1-3
Intended Purpose	1-4



(2) General

Warranty/Liability	2-2
Duty of owner	2-3
Duty of operators	2-3
Manufacturer	2-4
Contact	2-4



(3) Specifications

Assemblies	3-2
Tool ESN50	3-3
Charger LG4F	3-4
Battery RA5	3-5



(4) Description/Operation

Components	4-2
Functions	4-3
Trigger	4-3
Retract Button	4-3
C-Frame	4-3
Force Adjustment	4-4
Light Emitting Diode (LED)	4-4
Battery/Charger	4-5
Tool change	4-6
C-Frame-sided	4-6
Piston-sided	4-7
C-Frame change	4-8



Contents



Contents



(5) Transport/Waste Disposal

Transport	5-2
Waste disposal	5-3
<i>Regulations</i>	5-3
<i>Methods</i>	5-3
<i>Addresses</i>	5-4



(6) Service/Certificates

BOM (Bill of material)	6-2
Declaration of conformity	6-3



(1) Safety





(1) Safety

SYMBOLS



► Warning notice



► Important notice



► Eye protection must be worn (BGV A8 - M01) *



► Safety gloves must be worn (BGV A8 - M06) *



► Clearing before work (BGV A8 - M14) *



► Recycle every component possible



► Do not put in domestic waste



► Cross reference (see ...)

* = Safety signs in accordance with Council Directive 92/58/EEC annex 2 of 24 June 1992

(1) Safety



SAFETY INSTRUCTIONS



The following **safety instructions** must be followed during installation, operation, maintenance and **any usage** of the **machine!**
Nonobservance can lead to **persons** and **property damages!**

- ▶ Use the machine only for its **intended purpose**.
(☞ Safety – Intended purpose)



- ▶ **Eye protection must be worn** while the machine is in operation.



- ▶ **Safety gloves must be worn** for working with sharp-edged components.

- ▶ Do **not use** any **spare parts** and **equipment** for this machine other than those recommended and **supplied** by **Avdel Deutschland GmbH**.

- ▶ The machine shall at all times be maintained in accordance with the **applicable safety standards** to guarantee reliable working.



- ▶ Before any maintenance or service of the machine, **protect the machine from being operated unintentionally**.

- ▶ Before starting the machine, the operator must always **check** that **safety devices** are properly installed, working and operationally safe.

- ▶ Technical changes of the machine, which are **not** processed or **formally validated in written form** by **Avdel Deutschland GmbH**, lead to **loss of warranty and liability**

- ▶ Before any maintenance or service of **pneumatic components and tubes**, **disconnect it from the compressed air supply**.

- ▶ Before any maintenance or service of **hydraulic components and tubes**, **make it unpressurized**.

- ▶ The machine **has only** be operated **by according trained and briefed specialists**. Pay attention to the **applicable accident prevention and safety regulations!**

- ▶ Keep this **instruction manual** permanently close to the machine and keep **available to the operator**.



For any questions concerning machine and operator safety please contact **Avdel Deutschland GmbH**. (☞ *General - Contact*).



(1) Safety

INTENDED PURPOSE



Any **use** of the machine **other** than that described above is considered **not** in accordance with the **intended purpose!!**

The Battery tool Kit

Part No.	7FAS2-00019
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is exclusively designed for setting **self piercing rivets** and has to be **used** for this **purpose only!**

Permitted tools of this kit:

► with	Electro-hydraulic tool	
	Type:	ESN50
	Part No.	7FAS2-00026
	C-Frame	
	Type:	SNK50B8
	Part No.	7FAS2-01015

(2) General





WARRANTY/LIABILITY

Claims under **warranty** and **liability** for **personal injury** and **material damage** are **excluded** if such claims are due to one or more of the following causes:

- ▶ the machine **not** being used in accordance with **purpose**
 ➔ *Safety – Intended Purpose*
- ▶ **incorrect installation, commissioning, operation** and/or **maintenance** of the machine
- ▶ operating the machine in spite of **defective, incorrectly installed** or **non-functioning safety devices**
- ▶ **structural alteration** without the **express confirmation** of Avdel Deutschland GmbH
- ▶ **poor monitoring** of individual parts subject to wear
- ▶ **disasters** caused by the action of foreign bodies resp. **force majeure**

DUTY OF OWNER

The **owner** of the machine **undertakes** to

- ▶ allow only those persons familiar with **fundamental health** and **safety regulations** and who have been **instructed** in the handling of the machine to work with the machine



- ▶ provide the necessary **safety clothing** for operating staff of the machine



- ▶ regularly **check** the **safety devices** provided on the machine



- ▶ ensure that operators read and **understand** the **instruction manual**, especially the **safety rules** and **warning advices**



DUTY OF OPERATORS

The **operator** of the machine **undertakes** to

- ▶ observe fundamental **health** and **safety regulations**



- ▶ read the **instruction manual**, especially the **safety rules** and **warning advices**, and **clarify anything** they do **not fully understand**



- ▶ **report damages** at the machine **without delay** and **stop the machine immediately** in the event of **danger**





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(3) Specifications





(3) Specifications

ASSEMBLIES



Please **check** first, if you **received** all listed **parts**!

7FAS2-00019

Handtool Kit

Electro-hydraulic Tool	ESN50	7FAS2-00026	1x
C-Frame	SNK50B8	7FAS2-01015	1x
Charger	LG4FAV	7FAS2-04001	1x
Battery 12VDC	RA5	7FAS2-03006	1x
Tool case		7FAS2-03003	1x

(3) Specifications



TOOL

Type	ESN50
Partnumber	7FAS2-00026*
Weight	approx. 3kg (6.6lb)*
Joining force	approx. 20 to 50kN (4444 to 11109 lbf) adjustable
Motor voltage	12V DC
Stroke	29 mm
Working stroke time	approx. 3 to 5s
Working stroke performance	approx. 300 strokes/battery
Hydraulic oil	AVIA HVI 15
Sound level	75dB (A) at 1 m distance
Vibrations	< 2.5m/s ²
recommended service interval	10.000 strokes

* incl. Battery **RA5** (Partnumber 7FAS2-03006)





(3) Specifications

CHARGER

Type	LG 4 F
Partnumber	7FAS2-04001
Input supply	240V-250V AC 50Hz-60Hz
Output supply	7,2V DC - 9,6V DC -12V DC -14,4V DC
Capacity	2,6Ah
Charging time	1h
Battery type	NiMH, NiCd
Plug	CEE 7/16 (Euro)



(3) Specifications



BATTERY

Type	RA 5
Partnumber	7FAS2-03006
Capacity	3,0 Ah
Output supply	12VDC



(4) Description/Operation





(4) Description/Operation

COMPONENTS



1	Trigger	➡ (5) Description/Operation - Functions
2	Retract button	➡ (5) Description/Operation - Functions
3	C-Frame	➡ (5) Description/Operation - Functions
4	Force Adjustment	➡ (5) Description/Operation - Functions
5	Light Emitting Diode (LED)	➡ (5) Description/Operation - Functions
6	Battery	
7	Knurled Screw	
8	Hand Guard	

(4) Description/Operation

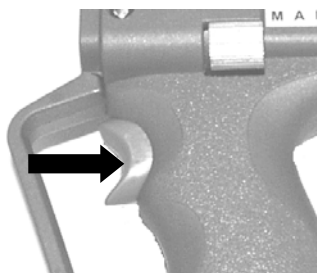


FUNCTIONS



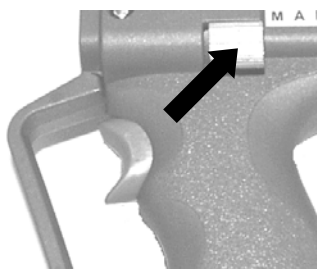
Do **not cycle** the machine for joining **without material** present

1 Trigger



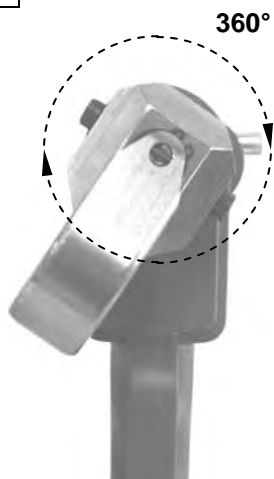
- ▶ Press Trigger
 - Work cycle starts
- ▶ Release Trigger
 - Forward motion of the piston stops

2 Retract Button



- ▶ Press Retract Button
 - Piston drive back into the starting position

3 C-Frame



Do **not undo** the **knurled screws**!
During this operation the **Retract Button** must be pressed

- Continuously rotation are possible



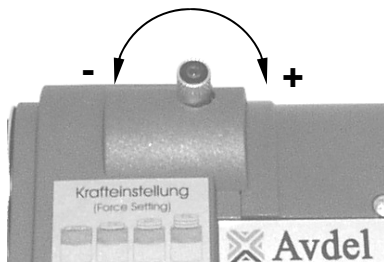
(4) Description/Operation

FUNCTIONS



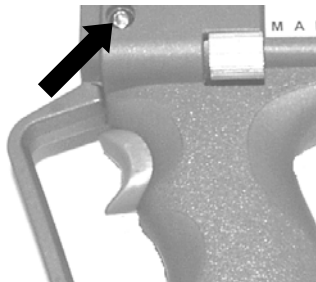
Do **not cycle** the machine for joining **without material** present

4 Force Adjustment



- ▶ Turn right
 - Increase Force
- ▶ Turn left
 - Decrease Force

5 Light Emitting Diode (LED)



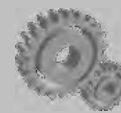
- ▶ **Continuously light (20s)**
after stopping the work cycle
 - Maintenance is due



Sending in machine or
contact Service
➡ (2)General - Contact

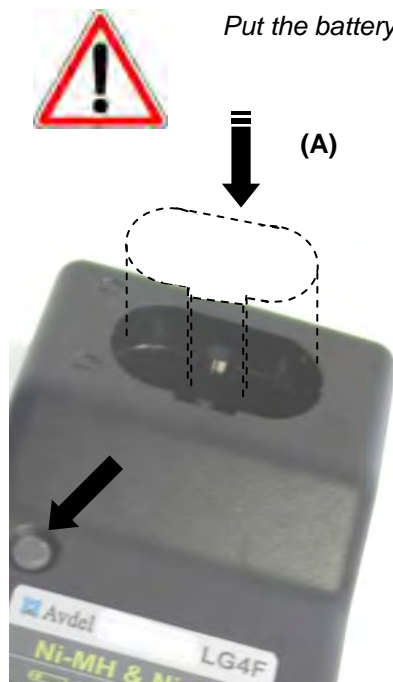
- ▶ **Short continuously flash**
after stopping the work cycle
 - Fault
or
 - Charge battery

(4) Description/Operation



FUNCTIONS

Battery/Charger



Put the battery according to the profile into the charge tray (A).
Do not use force!

Charging

- ▶ **Continuously light red**
 - Battery is charging
- ▶ **Continuously light green and**
- ▶ **Beep (5s)**
 - Charging finished

Check charge state

- ▶ **Continuously light red**
 - Charge battery
- ▶ **Continuously light green**
 - Charge state okay

Warning

- ▶ **Continuously flash green**
 - battery not correct into charge tray (A)
or
 - battery overheat



The charger will be operated by plug in (ON) and plug out (OFF) of the connector.
There is no switch at the charger.



(4) Description/Operation

TOOL CHANGE



If it is not necessary to move the piston, protect the machine from being operated unintentionally (take out the battery)!



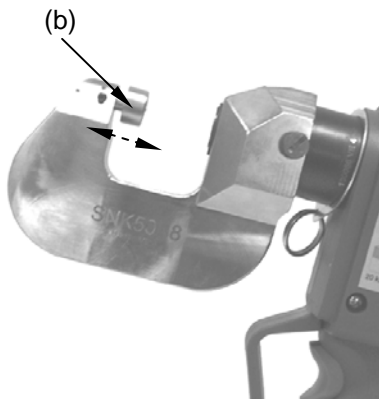
The tool bits are spring supported into the bracket and has not to be completely tighten therefore!

C-Frame-sided (Tool shank ø8mm)



► Mounting

- Loosen the (a) set screw so that the location hole can be accessed
- Slide the tool bit (b) in the location hole until it stops
- Tighten down the set screw
- Make sure the tool bit fits tightly



► Dismounting

- Loosen the set screw (a) so that the tool bit (b) can be removed without force
- Remove the tool bit
- Screw the set screw into the C-frame to avoid damage

(4) Description/Operation



TOOL CHANGE

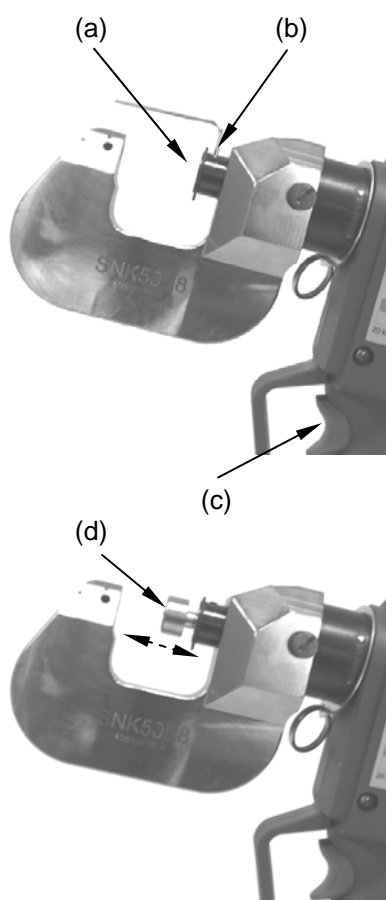


If it is not necessary to move the piston, protect the machine from being operated unintentionally (take out the battery)!



When changing the tool bits, do not press the retract button. The unscrewed set screw can cause damages!

Piston-sided (Tool shank $\varnothing 8\text{mm}$)



► Mounting

- Move the piston (a) out by pressing the trigger (c)
- Loosen the set screw (b) so that the location hole can be accessed
- Slide the tool bit (d) until it stops in the location hole
- Tighten the set screw
- Make sure the tool bit fits tightly

► Dismounting

- Move the piston (a) out by pushing the trigger. Loosen the set screw (b) so that the tool bit (d) can be removed without force
- Remove the tool bit
- Screw the set screw into the C-frame to avoid damage



(4) Description/Operation

C-FRAME CHANGE



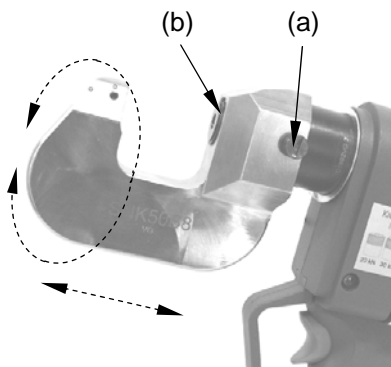
If it is not necessary to move the piston, protect the machine from being operated unintentionally (take out the battery)!



Dust or dirt must *not* be allowed to get into the cylinder when changing the C-frame!

Pay attention to the weight of the C-Frame.

While dismantling the C-frame it needs a higher force to hold it up, so it can't fall down or damage!



► Mounting

- Detach the knurled screws (a) at the C-frame until get free inside diameter
- Turn the C-frame clockwise and put it completely on the tool
- Turn back the C-frame 360° (one rotation) counterclockwise and fit the knurled screws

► Dismounting



In no case detach the retaining ring (b) at the working piston!

- Detach the knurled screws (a) at the C-frame until get free inside diameter
- Unfit the C-frame by turning it counterclockwise

(5) Transport/Waste Disposal





(5) Transport/Waste Disposal

TRANSPORT

In order to protect the tool against damages it has to be cleaned carefully after each use and be put into the transportation case which has to be closed safely. There are two insert boxes into the case. The upper insert box must be took out for reach the under insert box.



1	Battery	➡ (3) Specifications – Battery
2	Charger	➡ (3) Specifications – Charger
3	C-Frame	➡ (3) Specifications – C-Frame
4	Electro-hydraulic Tool	➡ (3) Specifications – Tool

(5) Transport/Waste Disposal



WASTE DISPOSAL

Regulations

For any kind of **waste disposal**, please **observe** the **applicable** national **laws** and **regulations**.

Please consider the following:



Recycle every component possible



Do not put batteries in domestic waste

Methods

Because of **potential environmental damage**, we recommend that the machine be disposed of by a **professional company**



*The old machine or old machine components **cannot** be returned to Avdel Deutschland GmbH **free of charge**!*

We particularly give the following **notes**:



Hydraulic oil presents a hazard to ground-water. **Uncontrolled draining** or **incorrect disposal** is liable to **prosecution** (environmental liability law).



Batteries und **accumulator** must be treated separately from other waste and must **not** be put in **domestic waste**. Contravention is liable to **prosecution**!



Avdel Deutschland GmbH fulfils at the manufacturing of their products

- ▶ the **basic duty** to **waste avoidance**
- ▶ the **basic duty** to **recycling**
- and
- ▶ the **duty** to **waste disposal**



(5) Transport/Waste Disposal

WASTE DISPOSAL

Addresses

For **any questions** concerning **waste disposal** please contact

Environment Directorate-General
European Commission
Rue de la Loi 200

B-1049 Brussels
Belgium

http://europa.eu.int/comm/dgs/environment/index_en.htm

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<http://www.avdel-global.com>

or consult your **regional waste management body**

(6) Service/Certificates





(6) Service/Certificates

BOM

Description	Avdel	Spare Part	Wearing Part	Tool/Process Material
Kit complete	7FAS2-00019			
Tool Case	7FAS2-03003	•		
Charger	7FAS2-04001	•		
C-Frame	7FAS2-01015	•		
Electro-hydraulic Tool	7FAS2-00026	•		
Battery	7FAS2-03006	•		
Instruction Manual	-			



DECLARATION OF CONFORMITY

Avdel Deutschland GmbH

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We hereby declare that the following product is in conformity with the following standards or normative documents

**DIN EN 12100 Teil 1 und 2; EN 13852; EN 394; EN 60204-1; EN 28662-1;
EN 61000-6-2; EN 61000-6-3; EN 60745-1**

In accordance with the regulations of directives 2006/42/EG, 2004/108/EG

Description	<i>Electro-hydraulic Handtool</i>
Type	<i>ESN50</i>
Part number	<i>7FAS2-00019</i>

January 2011

Ferhat Özhan