



thermo scientific

Thermo Scientific

HAAKE MiniJet Pro

Instruction Manual

005-2150 Version 1.8 October 2018

ThermoFisher
SCIENTIFIC

Konformitätserklärung
Declaration of Conformity
Déclaration de conformité

075-3044

Produktbezeichnung
Product name
Nom du produit

Identifikation
Identification
Identification

HAAKE Minijet Pro

567-2096

Hersteller
Manufacturer
Fabricant

Thermo Electron (Karlsruhe)
GmbH
Dieselstraße 4
D – 76227 Karlsruhe
Germany



Dokumentationsbevollmächtigte Person
Authrised person for technical file
Personne autorisée à constituer le dossier
technique

Henry Eisenlohr
Thermo Electron (Karlsruhe) GmbH

Richtlinie
Directive
Directive

2006/42/EG

Maschinenrichtlinie
Machinery directive
Directive des machines

Konform zu weiteren Richtlinien
Conform to other directives
Conforme aux autres directives

2014/30/EU

Richtlinie für elektromagnetische Verträglichkeit
Electromagnetic Compatibility Directive
Directive relative à la compatibilité électromagnétique

2014/35/EU

Niederspannungsrichtlinie
Low voltage directive
Directive „Basse tension“

2011/65/EU

RoHS

**Folgende harmonisierte Normen wurden angewandt:
 Following harmonized standards are used:
 On a appliqué les normes harmonisées suivantes :**

EN ISO 12100:2010	Sicherheit von Maschinen - Grundbegriffe, allgemeine Gestaltungsleitsätze Safety of machinery – basic concepts, general principles for design Sécurité des machines – Termes de base, principes généraux de conception
EN 60204-1:2014	Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen – Teil 1 Safety of machinery – electrical equipment of machinery – Part 1 Sécurité des machines – Equipement électrique des machines – Partie 1
EN 61326-1: 2013	Elektrische Mess-, Steuer-, Regel- und Laborgeräte - EMV-Anforderungen, Teil 1 Allgemeine Anforderungen Electrical equipment for measurement, control and laboratory use EMC-requirements, Part 1 general requirements Equipement électrique de mesure, de commande, de régulation et appareils de laboratoire - Exigences CEM, Partie 1 Exigences générales

Wir erklären in unserer ausschließlichen Verantwortung, dass das Produkt, auf das sich diese Erklärung bezieht, mit den oben genannten Normen, normativen Dokumenten und den Bestimmungen der genannten Richtlinien übereinstimmt. Die Prüfprotokolle werden bei Thermo Electron (Karlsruhe) 10 Jahre aufbewahrt.

We declare under our sole responsibility, that this product to which this declaration relates is in conformity with the a.m. standards or other normative documents and is following the provisions of the a.m. directives. All test certificates will be kept by Thermo Electron (Karlsruhe) for 10 years.

Nous déclarons, sous notre seule responsabilité, que le produit auquel cette déclaration fait référence est conforme aux normes susmentionnées, aux autres documents normatifs et aux dispositions des directives citées. Les procès-verbaux de vérification sont conservés pendant 10 ans chez Thermo Electron (Karlsruhe).

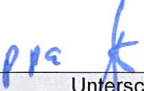
	03/05/2016	Thermo Electron (Karlsruhe) GmbH Dieselstr. 4 * 76227 Karlsruhe Tel. + 49-721-4094-444, Fax + 49-721-4094-418
Unterschrift Signature Signature Geschäftsleitung/ Business Management Direction commerciale	Datum Date Date	Hersteller Manufacturer Fabricant

Table of Contents

1. Key to Symbols	3
1.1 Symbols used in this manual	3
1.2 Symbols used on the unit	3
2. Quality Assurance	4
3. Your Contacts at Thermo Fisher Scientific	4
4. Safety Recommendations	5
5. Description of the HAAKE MiniJet Pro	6
5.1 Liquid cooling – option (567–2097)	7
6. Installation	8
6.1 Unpacking	8
6.2 Contents of delivery	8
6.3 Space requirements	9
6.4 Ambient conditions	9
6.5 Panel of the drive unit	10
6.5.1 Connecting to the mains	11
7. Information concerning the CE sign	12
7.1 WEEE Compliance	13
8. Operating	14
8.1 Operating panel	14
8.2 Basic setting	14
8.3 Initial display	15
8.4 Using the menu	15
8.5 Menu configuration	15
8.6 Programs	16
8.7 Function of the device	17
8.8 Stand	18
8.9 Test of the safety device	19
8.10 Produce a sample specimen	20
8.11 Cleaning	22
8.11.1 Cleaning of the Injection cylinder	22
8.11.2 Cleaning of the molds	22
8.12 Find processing parameters	23
8.13 Typical process conditions for HAAKE MiniJet Pro	23

Table of Contents

9. Service	24
9.1 Maintenance	24
9.1.1 Replacement fuses	24
9.2 Taking care of the unit	24
9.2.1 Taking care and cleaning of the molds	24
9.2.2 Cleaning materials	25
10. Technical Specifications	26
10.1 Accessories (optional)	27
10.2 Spare parts	28
11. Appendix	29
11.1 Functional diagram	29

Key to Symbols

1. Key to Symbols

1.1 Symbols used in this manual



Draws attention to the risk of injury.



Warns of possible damage to the unit or contains safety notes.



Denotes an important remark.



Indicates the next operating step to be carried out and ...



... what happens as a result thereof.

1.2 Symbols used on the unit



Caution: Read the instruction manual!
general warning, risk of danger



Caution: hot surfaces

2. Quality Assurance

Dear customer,
Thermo Fisher Scientific implements a **Quality Management System** certified according to ISO 9001:2008. This guarantees the presence of organizational structures which are necessary to ensure that our products are developed, manufactured and managed according to our customers expectations. Internal and external audits are carried out on a regular basis to ensure that our **QMS** is fully functional.

We also check our products during the manufacturing process to certify that they are produced according to the specifications as well as to monitor correct functioning and to confirm that they are safe. The results are recorded for future reference.

The "Final Test" label on the product is a sign that this unit has fulfilled all requirements at the time of final manufacturing. Please inform us if, despite our precautionary measures, you should find any product defects. You can thus help us to avoid such faults in future.

3. Your Contacts at Thermo Fisher Scientific

Please get in contact with us or the authorized agent who supplied you with the unit if you have any further questions.

Thermo Electron (Karlsruhe) GmbH
Part of Thermo Fisher Scientific
Dieselstraße 4
D-76227 Karlsruhe, Germany
Tel. +49(0)721 4094--444
Fax +49(0)721 4094--300

support.mc.de@thermofisher.com
www.thermofisher.com

The following specifications should be given when product enquiries are made:

Unit name printed on the front of the unit and specified on the name plate.

Typ: Order No. (e.g.: 557-3001)

Ser.:Nr.:



Mains voltage in V / power input:

e.g. 230 V/ 50-60 Hz/ 2 A

Safety Recommendations

4. Safety Recommendations

These notes are intended to draw your attention to risks which only **YOU** can recognize and avoid or overcome. They are intended to enhance your own safety consciousness.

- ! This instruction manual must be carefully studied! It contains important information on the connection to the local mains supply, correct unit usage and safe handling.**
- ! Ensure that this manual is always at hand for every unit operator.**
- ! Check for transportation damage during unpacking. Do not try to start up a damaged unit.**
- ! Repairs, alterations or modifications must only be carried out by specialist personnel. Considerable damage can be caused by improper repairs. The Thermo Fisher Scientific) service department is at your disposal for repair work.**
- ! All connections of the system are suitable for Thermo Fisher Scientific components only because of their specific current and voltage conditions.**
- ! The instrument must be lifted and transported by two people, the instrument weight is 56 kg.**
- ! Not to be placed on a base of inflammable material.**
- ! Only use this unit solely for the intended application.**
- ! Do not operate the unit with wet or oily hands.**
- ! Many units parts can become hot as a result of normal unit functioning - there is a high risk of burns! Please ensure that adequate contact protection is provided.**
- ! Do not move the unit from the position where it was set up during operation or when it is still hot.**
- ! Complete separation from the mains is required when:
 - all dangers caused by this device are to be avoided,
 - repairs or maintenance work is about to be carried out.**
- ! Dependent on the temperature and the substance to be measured toxic gases can be set free. (Attend the safety data sheets!)**
- ! Start the measuring sensor only at operating temperature!**

Unit Description

5. Description of the HAAKE MiniJet Pro



The HAAKE MiniJet Pro system is designed as a piston injection molding system. Material consumption is reduced dramatically in comparison with conventional injection molding units due to:

- reduced cylinder volume, resulting in a smaller quantity of required material
- almost complete transportation of material into the mold, this giving minimal loss and waste

In addition, an injection pressure of up to 1100 bar can be realized, thus enabling the processing of highly viscous materials. When used in conjunction with micro compounding systems, the HAAKE MiniJet Pro is an ideal complementary tool for compounding and sample preparation.

Vertical machine design features:

- simple loading of powders and pellets within the system cylinder
- quick and easy removal of the heated cylinder for melt applications when connecting to the HAAKE MiniLab or other extrusion systems
- simple design for the exchange of molds without tools

Unit Description

5.1 Liquid cooling - option (567-2097)

Optionally the HAAKE MiniJet Pro can be equipped with a liquid cooling jacket for the mold holder. This allows connecting a chiller to maintain the mold temperature low. Even the chiller is connected the HAAKE MiniJet Pro still controls the temperature. In case the liquid temperature is lower than the temperature setpoint entered at the Control Panel, the HAAKE MiniJet Pro is heating to maintain the entered temperature.

In case temperatures above 80 °C are entered, an internal valve closes and stops water flowing thru the cooling channel.

! Stop the chiller before disconnecting the chiller tubes from the HAAKE MiniJet Pro.

! Expect water coming out the connections after disconnecting the chiller tubes from the HAAKE MiniJet Pro.

Suitable chillers

567-7625	Chiller Unit for Process 11, 230 V, 50 Hz
567-7626	Chiller Unit for Process 11, 115 V, 60 Hz
567-7627	Chiller Unit for Process 11, 100 V, 50/60 Hz (Japan)
567-7636	Chiller Unit for Process 11, 230 V, 60 Hz (Korea)

Installation

6. Installation

6.1 Unpacking

Are the shock sensors red?

If a shipment is received in visibly damaged condition (i.e. the shock sensors indicate that the goods have been handled inappropriately in transit), be certain to make a notation on the delivering carrier's receipt and have his agent confirm the damage on your receipt. Otherwise, the damage claim may be refused.

 Remove the transport lock!

If concealed damage or pilferage is discovered, notify the carrier immediately and retain the entire shipment intact for inspection.

Before returning the device:

Inform the vendor (minor damage can often be rectified on site). Subject to authorization by Thermo Fisher Scientific, the goods are to be returned franco domicile.

6.2 Contents of delivery

Description	Quantity	Order no.
Fuse holder	1 piece	
Fuses 6.3 A slow	2 pieces	087-1485
Fuses 10 A slow	2 pieces	087-2756
Quick air connector	1 piece	799-6154
Injection plunger	1 piece	799-6754
Cylinder tripod	1 piece	799-6759
Power cord (Europe)	1 piece	000-0724
Power cord (USA)	1 piece	000-0725
Air hose	5 m	082-2419
Hose clamps	2 pieces	000-2025
Mold removal tool	1 piece	799-6766
Pliers to open mold	1 piece	799-6486
Piston remover tool	1 piece	799-6189
Nozzle opener (wrench size 10 mm)	1 piece	085-1936
Cleaning brush	3 pieces	799-6775
Anti Seize	1 piece	082-5241
Instruction Manual	1 piece	005-2150

Installation

6.3 Space requirements

Place the MiniJet Pro on a level floor where it is convenient to operate:

Base dimensions (mm): 340 x 460

- ! The instrument must be lifted and transported by two people, the instrument weight is 56 kg.**
- ! Not to be placed on a base of inflammable material.**

6.4 Ambient conditions

- indoors, max. 2000 meters above sea level,
- ambient temperature 5 ... 40 °C,
- relative humidity max. 80%/31°C (→ 50%/40 °C)
- Excess voltage category II, contamination level 2 (contamination level 2: usual, non-conductable contamination; temporary conductivity due to condensation should be expected.
- Voltage deviations of $\pm 10\%$ are tolerable.

Installation

6.5 Panel of the drive unit

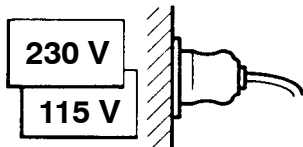


- 1 Main switch
- 2 Fuse holder
- 3 Liquid cooling output connection (optional)
- 4 Liquid cooling intake flow (optional)
- 5 Compressed air supply

Installation

6.5.1 Connecting to the mains

! Only attach the units to mains sockets with a grounded earth. Compare the local mains voltage with the specifications written on the name plates of the measuring instrument and the control unit. Voltage deviations of $\pm 10\%$ are permissible.

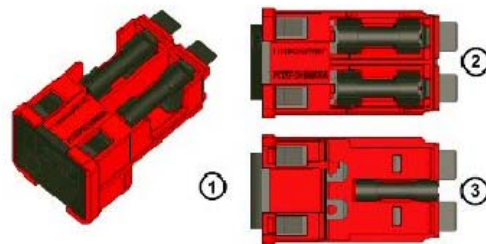
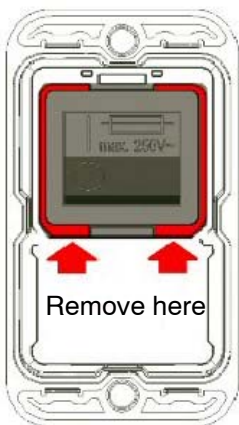


Before connecting the HAAKE MiniJet Pro to the power supply, it is essential to carry out the following steps:

- Check that the casing of the HAAKE MiniJet Pro shows no visible signs of damage.
- It is essential to check whether the selected voltage corresponds with that of the electricity mains.
- To replace the fuses for the appropriate supply voltage (220–240 V – 6.3 A; 100–120 V – 10 A) note the following points:

- 1 Pull the mains cable out of the connecting socket on the rear of the unit.
- 2 With the help of a small flat screwdriver, release the insert from the connecting socket.

Removal of the combined switch / fuse holder unit




Fuses are not in the scope of delivery.

An additional fuse mark on the switch indicates the fuses holders behind the switch. The red frame shows the outline of the removable unit.

With a simple tool like a Swiss Army knife or a screwdriver No 1 or smaller the unit (1) can be removed from the filter. On the topside (2) behind the switch there are two fuse holders for each live connection. On the bottom side (3) is a clip to carry an additional spare fuse.

- 3 Place the insert back with the selected fuses for the power supply on again.

 Use the mains cable according to your local mains voltage.

7. Information concerning the CE sign

Thermo Scientific electrical equipment for measurement, control and laboratory use bears the CE marking.

The CE marking attests the compliance of the product with the EC-Directives which are necessary to apply and confirms that the apparatus meets all relevant essential requirements of the directive, the defined relevant protection requirements.

The conformity assessment procedures were performed following a defined methodology according to each applicable directive.

The council decision 93/465/EEC shall be authoritative concerning the modules of the various phases of the conformity assessment procedures and the rules for the affixing and use of the CE marking, which are intended to be used in the technical harmonization directives.

To confirm compliance with the EC-Directive 2004/108/EC Electromagnetic Compatibility (EMC) our product was tested according to the EMC requirements for emission and immunity for electrical equipment for measurement, control and laboratory use.

Compliance with the protection requirements areas (domestic establishments and establishments directly connected to a low voltage power supply network which supplies buildings used for domestic purposes) and industrial areas is ensured.

Our strict standards regarding operating quality and resulting considerable amount of time and money spent on development and testing reflect our commitment to guarantee the high level of quality of our products even under extreme electromagnetic conditions.

Practice however also shows that even electrical equipment which bears the CE marking such as monitors or analytical instruments can be affected if their manufactures accept an interference (e.g. the flickering of a monitor) as the minimum operating quality under electromagnetic compatibility phenomena. For this reason we recommend you to observe a minimum distance of approx. 1 m from such equipment.

Information concerning the CE sign / WEEE compliance

7.1 WEEE Compliance

This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2012/19/EU. It is marked with the following symbol:



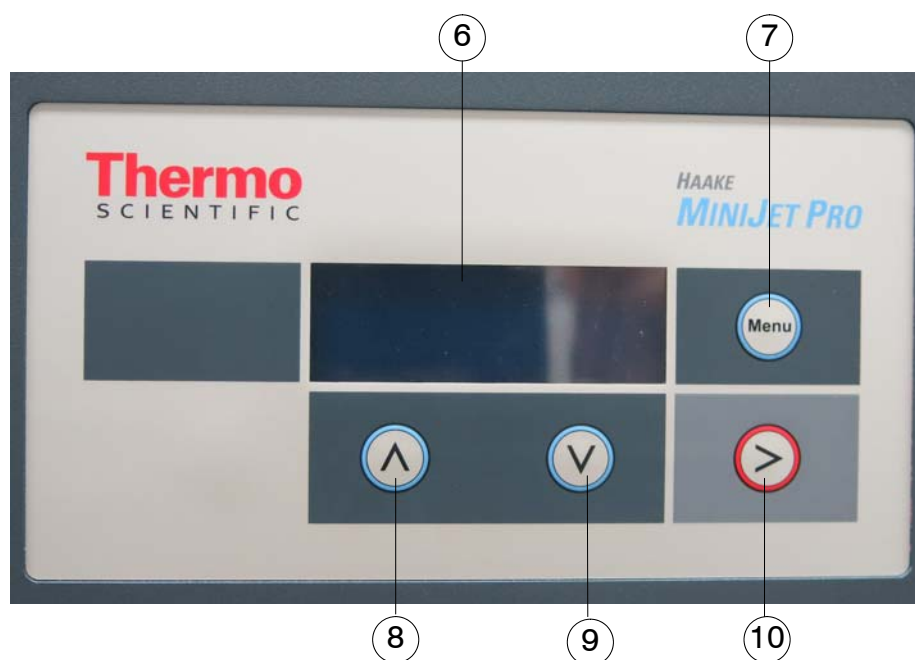
Thermo Fisher Scientific has contracted with one or more recycling/disposal companies in each EU Member State, and this product should be disposed of or recycled through them. Further information on Thermo Fisher Scientific compliance with these Directives, the recyclers in your country, and information on Thermo Fisher Scientific products which may assist the detection of substances subject to the RoHS Directive are available at www.thermo.com/WEEERoHS

Operating

8. Operating

All processing parameters of the HAAKE MiniJet Pro are set on the display. The basic operation of the display will therefore be explained first before the menu structure and its individual entries.

8.1 Operating panel



- | | | | |
|----------|----------|-----------|-------------------|
| 6 | Display | 9 | Down key |
| 7 | Menu key | 10 | Start / Enter key |
| 8 | Up key | | |

8.2 Basic setting

The dialogue language of the HAAKE MiniJet Pro can be selected. The operator can choose between:

- German
- English (default)
- French

To select the required language, please push:

1. Menu key **7** (1x)
2. Down key **9** (1x)
3. Menu key **7** (2x) ⇒ Language flashes; select the language with up and down key.
4. Confirm with the menu key.

Operating

8.3 Initial display

After an initialisation phase (approx. 5 seconds), the HAAKE MiniJet Pro shows the current measured values in the initial display. In this initial display, only the two outer buttons have a function:

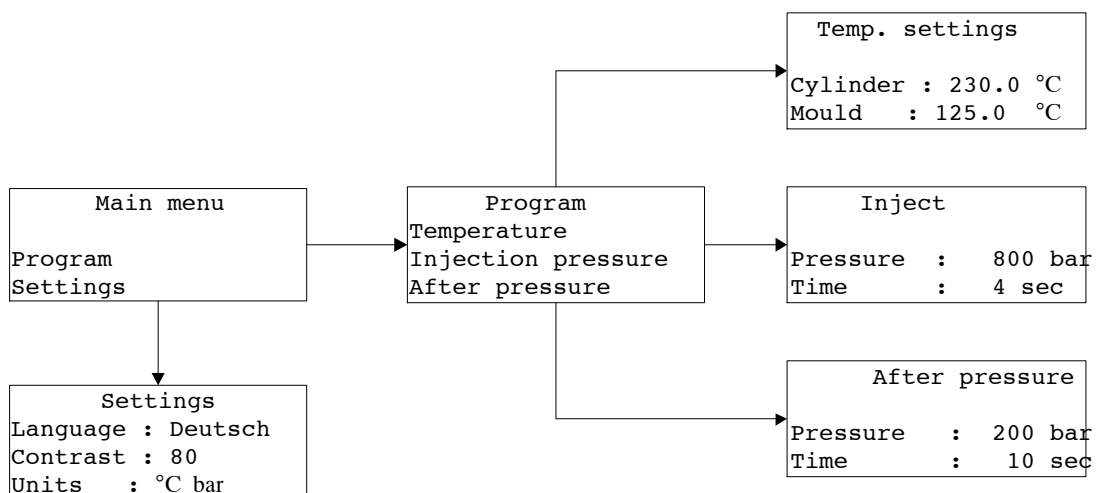
- Menu key **7**: change to the menu level
- Start key **10**: starts an injection operation
- Up key **8**: by press the key the door is opened
- Down key **9**: by press the key the door is closed

8.4 Using the menu

The display of the HAAKE MiniJet Pro contains four buttons, the functions of which are explained in the table below:

Button	Function in the menu	Function in the entry
Menu (7)	Select active entry	Leave the active entry
Up (8)	Activate previous entry	Increase the value of the active entry
Down (9)	Activate next entry	Reduce the value of the active entry
Start (10)	Back to the initial display	Back to the initial display

8.5 Menu configuration

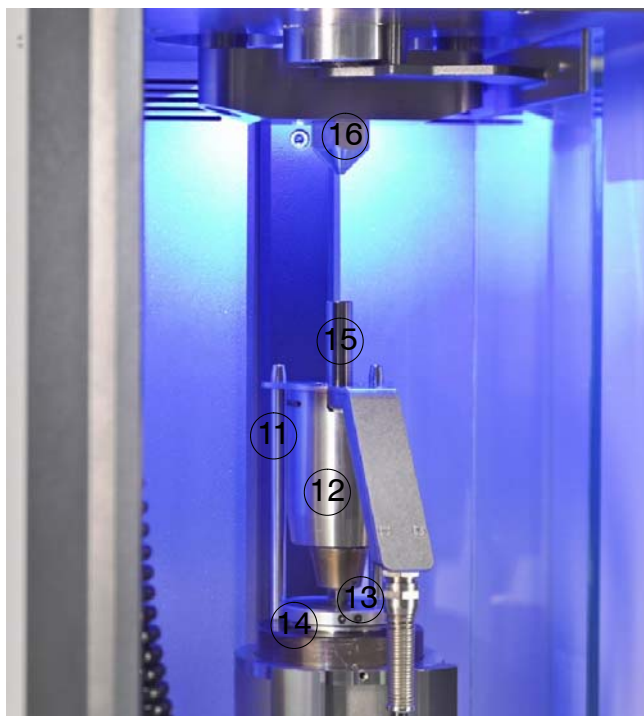


8.6 Programs

The HAAKE MiniJet Pro can save up to ten different sets of parameters in the programs. The program currently being used is selected under the menu point programs via its number (0....9).

Operating

8.7 Function of the device



- | | | | |
|-----------|------------------|-----------|------------------|
| 11 | Retaining pin | 14 | Mold |
| 12 | Cylinder | 15 | Injection piston |
| 13 | Injection nozzle | 16 | Pneumatic piston |

In the lower part, the HAAKE MiniJet Pro incorporates the temperature-controlled mould holder.

The injection needle (nozzle) **13** in the corresponding recess in the mold **14**. The injection piston **15** transfers the forces of the pneumatic cylinder **16** to the sample compound inside the injection cylinder.

The safety door closes manually with the down key **9**. After it is closed, the injection process can be activated. However, the heating of the mold holder and cylinder remains active even in the open state.



! **Caution: Burn danger!**
Only heat-resistant gloves should be worn.

Operating

8.8 Stand



The Injection Cylinder assembly is positioned on the accessory; the Injection nozzle is not in contact with the accessory (to avoid temperature decrease).

The distance between the 2 cable glands of Cable PT100 / heater Injection Cylinder should be less than 1 meter to avoid cable cracks. Please take this maximum distance into account when the accessory is used.

- ! Caution: Burn danger!**
Be aware that the accessory temperature can be high (when the Injection Cylinder assembly is placed on it or afterwards).
Only heat-resistant gloves should be worn.

Operating

8.9 Test of the safety device

! Before the HAAKE MiniJet Pro is used for the first time, perform a test run to check the mechanical parts and the safety shutoff.

! Carry out the test once a month!

To do this, observe the following instructions:

- 1 Use the form in the holder.
- 2 Place the cylinder in the retaining pin,
- 3 do not fill in any material and do not insert the injection plunger.
- 4 Ensure that the compressed air is connected and ready (> 0.0 bar shown in the display)



Do not reach into the chassis!

- 5 Keep the door of the unit open, the closing force is very low.
- 6 Press the Start button on the display unit.
- 7 The drive plunger must not move, instead a message appears in the display and at the same time an audible warning signal sounds and the chamber's light flashes.
- 8 The door closed automatically.
- 9 The drive plunger now moves down.
- 10 After the injection time ends, the unit switches over to the set hold-pressure.
- 11 After the hold-pressure time expires, the drive plunger automatically moves back into the upper starting position.

If all of these steps have been performed exactly, the HAAKE MiniJet Pro is ready for use. If you have doubts about how it works, it is essential to contact Thermo Fisher Scientific before you continue to use it.

Operating

8.10 Produce a sample specimen

To produce a specimen with the HAAKE MiniJet Pro follow the instructions step by step.



Always wear heat protection gloves when operating the HAAKE MiniJet Pro.



Always place the mold extension (assist piece) inside the mold holder before inserting on HAAKE MiniJet II type of mold (length 90 mm).

- 1 Switch on the HAAKE MiniJet Pro
- 2 Use the display's keys to set the proper parameters for sample material.
- 3 Open the door with the Up-key 8.
- 4 Take out the cylinder with handle bar and hang out into the stand 17.



- 5 Now you have free access to the Mold holder.
- 6 Do not place a cold mold into a heated mold holder. If the temperature of mold and holder differs by more than 40°C always use the following procedure to insert the mold.
- 7 Insert the mold remover tool into the hole in the front metal cover of the mold holder to avoid the mold touching the holder's wall completely.
- 8 You will observe the indicated mold temperature will drop down. Give time, till the temperature picks up to

Operating

the desired setpoint again ($\pm 1^\circ\text{C}$).

- 9 Remove the mold remover tool and let the mold sink completely to the holder.
- 10 Put on the cylinder with handle bar on the retaining pins.
- 11 Remove the injection piston **15** and fill the sample material to the cylinder. If pellets are used it is critical to compress the sample several times during loading in order to avoid included air bubbles in the specimen.
- 12 Insert the injection piston **15** into the injection cylinder **12** again. Observe that no (creasing) of the piston are visible.
- 13 Close the door and make sure that the cylinder has not be significantly be moved.
- 14 Press the Start (>) key at the display.
- 15 The HAAKE MiniJet Pro will run the programmed procedure.
- 16 Follow steps 3-4 of this instruction to remove the injection cylinder again.
- 17 Use the mold remover tool **18** to release the mold from the HAAKE MiniJet Pro.



- 18 Use the mold remover tool **18** with lever horizontally. Turn the lever clockwise, the mold pick up itself.
- 19 Open the mold with the clamp delivered with the HAAKE MiniJet Pro. To simplify opening each mold is equipped with tree pairs of holes.

Operating


8.11 Cleaning

8.11.1 Cleaning of the Injection cylinder

- 1 Fix the piston remover handle on top of the piston. Fix the thread completely to the piston, otherwise the thread can be broken.
- 2 Remove the Injection piston by pulling the handle to the top.
- 3 Clean the injection piston with a copper brush.
- 4 Use a 10 mm wrench (delivered with the instrument) to unscrew the injection nozzle from the injection cylinder.
- 5 Quickly remove remaining sample material from the injection nozzle.
- 6 Clean the inside of the injection cylinder using the copper brushes and cotton cloth delivered with the instrument.

8.11.2 Cleaning of the molds

- 1 Remove the specimen from the molds cavity.
- 2 Clean both mold sides using soft cloth or copper brushes. Never use steel brushes, as they will damage the surface of the mold.
- 3 Before the mold is assembled again, observe carefully that the mold's surfaces are free of material rests. If the mold is not 100% clear it will become very likely to leakage.
- 4 The Mold can be easily oiled after use to prevent rusting.

 Solvent or soft cloth should be used to remove the oil before use.


Operating

8.12 Find processing parameters

! When new materials shall be processed, it is very important to start with low Injection pressure (i.e. 200 bar).

It is critical to avoid overshoots, as they will damage the mold and make removing the mold very difficult.

Start with low injection pressure and perform a test shot. If the Mold is not completely filled, increase the pressure slightly (Steps of 50 bar). And repeat until the mold is completely filled.

 If the mold is completely filled, do not increase the injection pressure.

8.13 Typical process conditions for HAAKE MiniJet Pro

Polymer	Cylinder temperature [°C]	Mould temperature [°C]
LDPE	140 to 210	20 to 70
HDPE	160 to 240	20 to 70
PP	180 to 280	50 to 100
PS	160 to 250	20 to 50
SAN	180 to 260	40 to 80
ABS	180 to 240	50 to 85
PVC	150 to 200	20 to 60
PMMA	180 to 250	50 to 90
PA 6	230 to 290	30 to 80
PA 66	260 to 300	30 to 80
PET	250 to 280	30 to 140
POM	180 to 280	50 to 140
PC	280 to 320	80 to 120
PSO	320 to 380	100 to 160
PPS	340 to 370	25 to 200


Service

9. Service

9.1 Maintenance

**! Disconnect unit from mains supply.
Unplug plug.**

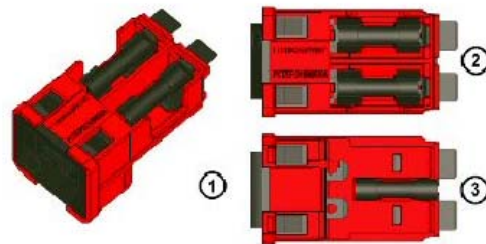
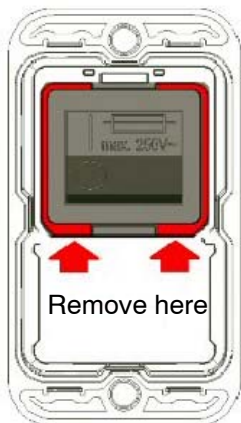
The HAAKE MiniJet Pro requires no special periodical maintenance work. However, the unit must be kept clean at all times.

 The moving parts should be cleaned regularly.

If you have doubts about correct operation of the HAAKE MiniJet Pro, a test run should be carried out. See chapter 8.9. be

9.1.1 Replacement fuses (see chapter 6.5.1)

Removal of the combined switch / fuse holder unit



Fuses are not in the scope of delivery.

An additional fuse mark on the switch indicates the fuses holders behind the switch. The red frame shows the outline of the removable unit.

With a simple tool like a Swiss Army knife or a screwdriver No 1 or smaller the unit (1) can be removed from the filter. On the topside (2) behind the switch there are two fuse holders for each live connection. On the bottom side (3) is a clip to carry an additional spare fuse.

9.2 Taking care of the unit

9.2.1 Taking care and cleaning of the molds

! To clean the mold surface without scratching the surface, use only a copper brush.

! Do not use any sharp objects (e.g. a scalpel or screw driver) to release the moulded part from the mold.

Before being put into storage for an extended period, spray the mold with a suitable medium (e.g. teflon spray) in order to protect the surface against rust. This medium must be removed from before using the mold. Acetone, for example, can be used to do this.

Service

9.2.2 Cleaning materials

Consumables that should be used to clean the unit:

Description	Order no.
Cleaning brushes (5 pieces)	556-1181
Cleaning pads (100 pieces)	799-6369

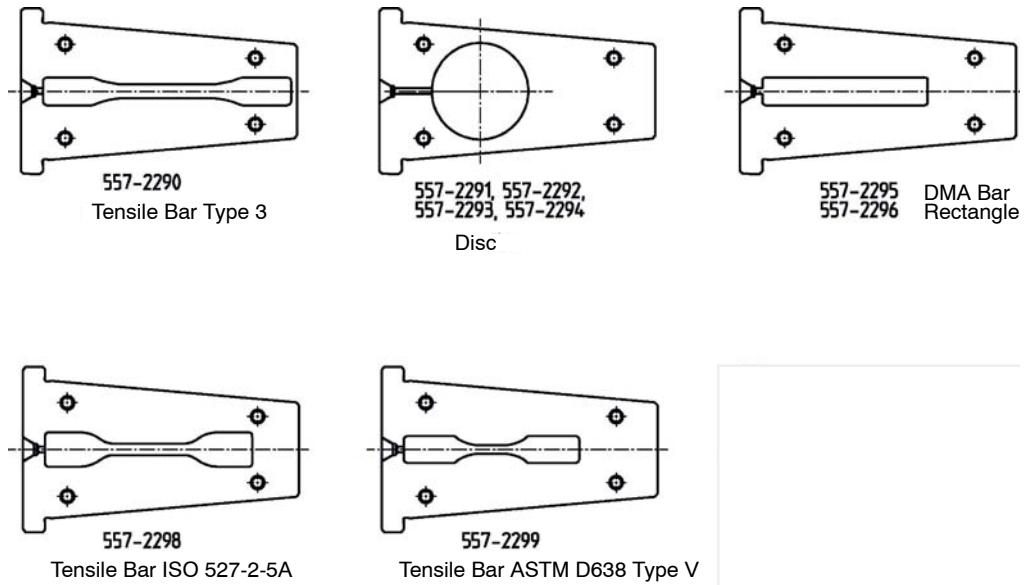
Technical Specifications

10. Technical Specifications

Max. injection pressure	bar	1100
Mains supply	V	230 ± 10% 110 ± 10%
Current consumption: 220 V / 240 V 100 V / 120 V	A	6.3 10
Frequency:	Hz	50 - 60
Max. air pressure	bar	10; filtered (50 µm), oil-free, dry compressed air
Max. cylinder temperature	°C	450
Max. mold temperature	°C	250
Dimensions (W/D/H)	mm	335 x 410 x 730
Weight	kg	56

Technical Specifications

10.1 Accessories (optional)



Description

Part no.

Molds for HAAKE MiniJet Pro:

Tensile bar	557-2290
Disc \varnothing 20 mm, H=1.5 mm	557-2291
Disc \varnothing 25 mm, H=1.5 mm	557-2292
Disc \varnothing 35 mm, H=1.5 mm	557-2293
Variable disk shape	557-2294
DMA bar (60x10x1 mm)	557-2295
Rectangle form	557-2296
Tensile bar ISO 527-2-5a	557-2298
Tensile bar ASTM D638 Typ V	557-2299
Tensile bar ISO 527-2-IBA	557-2289
Mold (80x10x4 mm)	
Izod ISO 180, Charpy ISO 179-1	557-2300

Technical Specifications

10.2 Spare parts

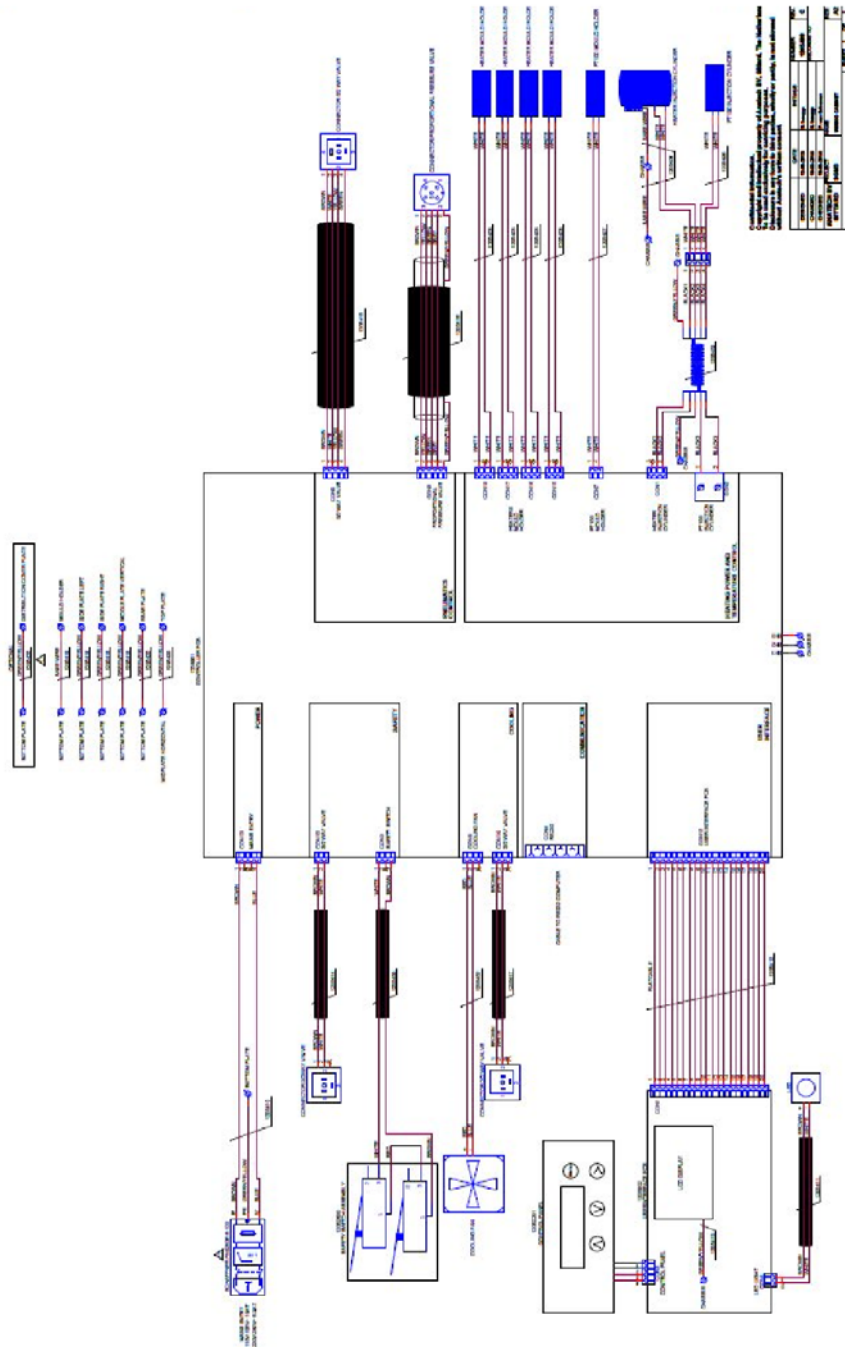
Description	Part no.
Injection nozzle	799-6753
Injection piston	799-6754
Mould removal tool	799-6766
Helix cable	799-6743

Appendix

11. Appendix

11.1 Functional diagram

The following figure shows the basic function of the HAAKE MiniJet. All the unit's components are shown, as well as how they are connected to the main board.



Contacting us

There are several ways to contact Thermo Fisher Scientific for the information you need.

❖ To contact Technical Support or Sales, Germany and International

Company	Thermo Electron (Karlsruhe) GmbH Part of Thermo Fisher Scientific
Address	Dieselstrasse 4 76227 Karlsruhe, Germany
Phone	+49(0)721 4094 444
Fax	+49(0)721 4094 300
E-mail	support.mc.de@thermofisher.com
Internet	www.thermofisher.com

❖ To contact Technical Support or Sales, USA/Canada

Company	Thermo Fisher Scientific
Phone	+1 866 537 0811
E-mail	info.mc.us@thermofisher.com

❖ To contact Technical Support or Sales, UK

Company	Thermo Fisher Scientific
Phone	+44(0)1442 23 35 55
E-mail	info.mc.uk@thermofisher.com

❖ To contact Technical Support or Sales, France

Company	Thermo Electron S.A.S.
Phone	+33(0)1 60 92 48 00
E-mail	info.mc.fr@thermofisher.com

❖ To contact Technical Support or Sales, Benelux

Company	Thermo Fisher Scientific
Phone	+31(0)76 579 55 55
E-mail	info.mc.nl@thermofisher.com

❖ To contact Technical Support or Sales, China

Company Thermo Fisher Scientific
Address Building 6, No. 27
XinJinqiao Rd., Shanghai 201206
Phone +86(21) 68654588
Fax +86(21) 64457830
E-mail info.mc.china@thermofisher.com

❖ To contact Technical Support or Sales, Japan

Company Thermo Fisher Scientific
Address C-2F, 3-9, Moriya-cho, Kanagwa-KU
Yokohama, 221-022
Phone +81 45 453 9170
Fax +81 45 453 9082
E-mail info.mc.jp@thermofisher.com

❖ To contact Technical Support or Sales, India

Company Thermo Fisher Scientific
Address 403-404, Delphi-B Wing, Hiranandani Business Park
Powai, Andheri (E), Mumbai - 400076
Phone +91 22 6680 3000
Fax +91 22 6680 3001
E-mail info.mc.in@thermofisher.com