

Instruction handbook

Plastotherm Hand Extruder

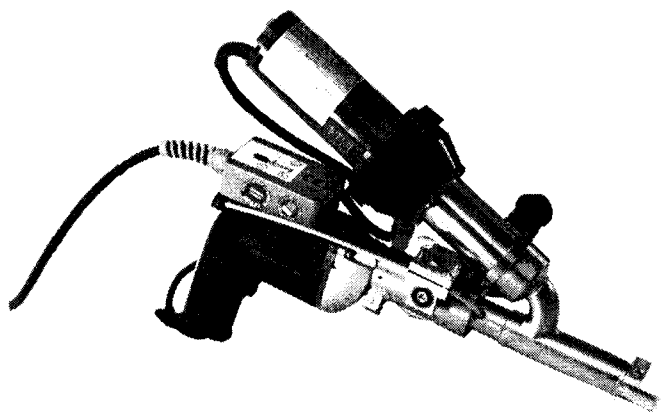
Standard

Type: SKR

Serial number:

Purchase date:

Made in Germany



Before use,
read and observe
the instruction handbook
and safety instructions!



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1th Edition: February 1996

Konformitätserklärung Declaration of Conformity



MUNSCH Kunststoff-Schweißtechnik GmbH
Im Staudchen
D-56235 Ransbach-Baumbach

declares in sole responsibility that the Plastotherm Hand Extruder

Device type: Plastotherm *Standard*
Design designation: SKR

to which this declaration refers conforms to the following standards or standardised documents:

EG Machine guidelines 89/392/EWG	EN 60355-2-45:1990+A1+A51
EG Low voltage guidelines 73/23/EWG	EN 55014:1993
EG Guidelines EMV 89/336/EWG	EN 61000-3-2:1995
EN 60335-1:1988+A2+A5+A6+A51+A52+A53+A54	EN 61000-3-3:1995
EN 60335-1 A55/04.93	EN 55104:1995

The product adheres to the above named standards if used within the regulations agreed in the contract.
The user is responsible for this.

Ransbach-Baumbach, February 1996

A handwritten signature in black ink, reading 'Stefan Munsch'. The signature is written in a cursive, flowing style.

Dipl. Ing. Stefan Munsch
Managing Director

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This instruction handbook should help you to become familiar with the Plastotherm Hand Extruder and to use its intended application possibilities.

The instruction handbook contains important information on safe, proper and economic operation of the Plastotherm Hand Extruder. Observing these instructions will help prevent hazards, reduce repair costs and non-productive times and increase the reliability as well as the life limit of the Plastotherm Hand Extruder.

The instruction handbook must always be available at the location where the Plastotherm Hand Extruder is in use.

The instruction handbook must be read and used by anyone who has been appointed to work with/on the Plastotherm Hand Extruder, for example, during

- **assembly**
- **operation**
- **maintenance** (service, ...) and/or
- **transport.**

Specially trained personnel must be used for operation and maintenance of the Plastotherm Hand Extruder.

Apart from the instruction handbook and those obligatory regulations for accident prevention applicable in the country of use and application location, the standard technical regulations for safe and professional operation must be observed.

This instruction book contains basic information which must be observed during installation, operation and maintenance. For this reason, this instruction book must be read by the mechanic as well as the responsible specialist personnel/user before assembly and initial operation and must always be available at the location where the Plastotherm Hand Extruder is in use.

Not only the general safety instructions listed in the chapter on "Safety" but also the special safety instructions added to the other main points must be observed.

The safety instructions in this handbook are identified by the general hazard symbols



Safety symbol according to DIN 4844-W9

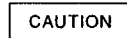
and when warning against voltage with



Safety symbol according to DIN 4844-W8

Non-observance of these safety symbols may lead to personal injury.

Where damage to the device and its functions may arise, if the instructions are not observed, the word



is inserted.

Use of special tools is identified by



Instructions attached to the Plastotherm Hand Extruder such as, e.g.,

- warning plate
- rating plate

must be observed and must always be clearly visible.

Hazards resulting from non-observance of the safety instructions

Non-observance of the safety instructions may lead to hazards to personnel as well as the environment and device.

Non-observance of the safety instructions may lead to the loss of any claims for damages.

Non-observance of the safety instructions may lead in particular to the following hazards, for example:

- Failure of important Plastotherm Hand Extruder functions
- Failure of specified methods for care and maintenance
- Personal hazard due to electrical and mechanical influences.

MUNSCH Kunststoff Schweißtechnik GmbH strives to keep not only its products but also the relevant documentation up to date and to describe these as clearly as possible for the user.

If you have any suggestions for improving our documentation, we would be pleased to hear from you.

Please send your suggestions to:

MUNSCH Kunststoff-Schweißtechnik GmbH
Postfach 142
D-56221 Ransbach-Baumbach

MUNSCH Kunststoff-Schweißtechnik GmbH

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General

The general agreement concerning safety regulations in the VDE 0701 standard applies analogously.

The operation of Plastotherm Hand Extruders is subject to the applicable national regulations.

Apart from the instruction book and the obligatory regulations for accident prevention applicable in the country of use and application location, the recognised technical regulations for safe and professional operation must be observed. Guideline 92/57/EWG of 24.06.1992 applies analogously.

Not only the general safety instructions listed in this chapter but also the special safety instructions added to the other main points must be observed.

Do not attempt any operation which may be a safety hazard.

Intended use

The Plastotherm Hand Extruder has been constructed according to the latest technology and recognised safety regulations. However, improper use may lead to hazards for the user or a third party or damage to the machine and other material assets.

The Plastotherm Hand Extruder must only be used if it is in excellent technical condition. Use the extruder according to regulations and be aware of safety and hazards described in the instruction handbook.

If the Plastotherm Hand Extruder fails to function correctly, stop work immediately and secure! Eliminate malfunctions (or have them eliminated) straightaway.

The Plastotherm Hand Extruder is only to be used as agreed in the order confirmation. Another use or use beyond this is not as intended. The manufacturer/supplier is not liable for damages resulting from this. The user is solely responsible. Intended use involves observance of the instruction handbook and keeping to the inspection and maintenance conditions.

If a new application of the Plastotherm Hand Extruder lies outside the limits of use defined in the order confirmation or if the user is in doubt regarding changes, the change must be approved by the manufacturer/supplier.

Organisational measures

Always keep the instruction handbook ready to hand at the location where the Plastotherm Hand Extruder is in use.

Observe the general, legal, national and other compulsory regulations on accident prevention and environmental protection in addition to those described in the instruction handbook.

The individual appointed to undertake work using the device must have read the instruction handbook before starting work, paying particular attention to the chapter on safety instructions.

If changes are made to the Plastotherm Hand Extruder or its operating performance relevant to safety, stop working with the Plastotherm Hand Extruder immediately and report the malfunctions to the authority/person responsible.

Do not undertake any changes on, add to or reconvert the Plastotherm Hand Extruder which could impair safety without permission from the supplier.

Personnel selection and qualification

Work on electrical parts of the Plastotherm Hand Extruder may only be undertaken by skilled electricians or by persons instructed under direction and supervision of a skilled electrician according to electrotechnical regulations.

Only specially trained personnel may be used for the assembly, operation and maintenance of the Plastotherm Hand Extruder.

Safety instructions on specific operating phases

Observe the specified adjustment, maintenance and inspection activities and deadlines including information on parts/part equipment in the instruction handbook. These activities may only be carried out by trained personnel.

Individual parts and larger components must be secured carefully when being exchanged so that they do not cause any hazard.

Before cleaning the Plastotherm Hand Extruder, cover/glue up all openings into which a cleaning agent must not penetrate due to safety and/or functioning reasons (e. g. electromotors).

After cleaning, completely remove the covers/glue.

Always tighten screw connections loosened during maintenance and repair work.

If safety devices have to be removed during set-up, maintenance and repair, these must be reassembled and inspected once the maintenance and repair work has been concluded.



According to VDE 0701 (IEC 335) it is stipulated that the protective resistor, insulation resistance and the earth leakage current must be measured after every maintenance or change. In addition a visual inspection of the connecting cable, a voltage and electric charge measurement and a functional check must be carried out.

Make sure process materials as well as replacement parts are disposed of safely and with consideration to the environment.

Information on special types of hazard

Contact



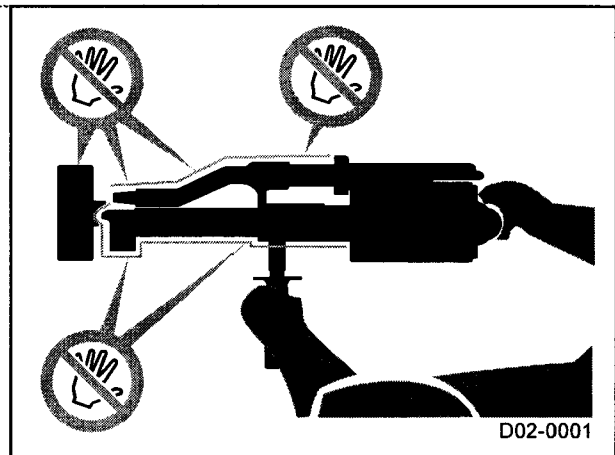
The Plastotherm Hand Extruder may only be held and touched on the handles intended.

- Bare metal parts (also the heat cover of the stand) must **not** be touched with or without gloves. These parts reach temperatures of up to 350 °C.
- Attachments may be damaged by the weight of the Plastotherm Hand Extruder or may be impaired in their functioning.
- Bare metal parts may not come into contact with objects during work or during breaks (e. g. cooling off). This also applies for the heat cover and parts of the stand.



There is a fire risk if combustible objects come into contact with hot metal parts of the hand extruder during operation.

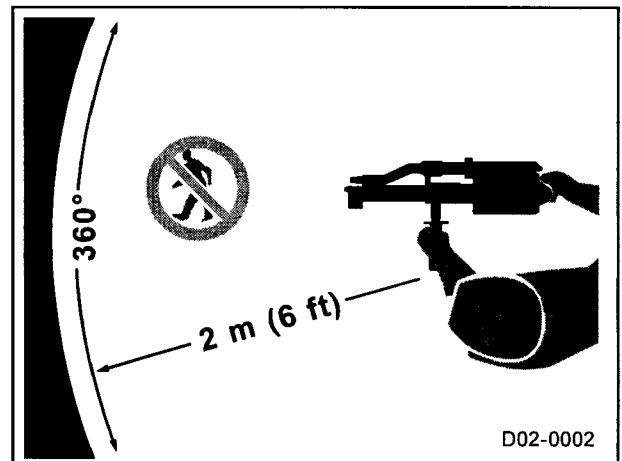
Do not use synthetic gloves!



Working area

The hot air jet of the Plastotherm Hand Extruder must not be directed towards living things or temperature-sensitive objects.

Safety range: 2 m circumference



Overhead work

If working with the device above head level, wear relevant personal protective items (e. g. helmet, goggles, gloves, ...) to protect against any parts which may fall down.

Note

Plastotherm Granulat is not suitable for overhead work, among other things.

Operation

CAUTION

The Plastotherm Hand Extruder may not be operated without an air supply. Damage may occur to the Plastotherm Hand Extruder.

Make sure the supply lines have sufficient dimensioning for the external air supply

CAUTION

The supplied compressed air must be free of oil and water.



Before connecting to the mains, check the rated voltage of the Plastotherm Hand Extruder.

The mains voltage must correspond to the rated voltage of the Plastotherm Hand Extruder on the rating plate.

The Plastotherm Hand Extruder must be operated according to VDE 0100 §55 via residual-current-operated-circuit-breaker or isolating transformer.

When using an extension cable, be aware of the minimum cross section of the cables.

CAUTION

When operating the manual extruder (under load), a voltage of at least 220 V ¹⁾ (110 V ²⁾) must be present at the connecting plug of the manual extruder.

Length [m]	Cross section [mm ²]
up to 19	2.5 ¹⁾ 4.0 ²⁾
20 – 50	4.0 ¹⁾ 6.0 ²⁾

1) with 230 V ac. voltage

2) with 110 V ac. voltage

The extension cable must be permitted for the application location (e. g. outdoors) and marked accordingly.

Always take care when handling the connecting cable.

- Make sure the connecting cable does not have any kinks.
- Do not place any object on the connecting cable.
- Do not clamp or squash the connecting cable.



Do not touch the plug and connecting cable with wet hands. Always hold the connecting cable at the plug when plugging in and out.

CAUTION

If using a power generator for the energy supply, then the following applies for the nominal output for the power generator:

≥ 4 x nominal output Plastotherm Hand Extruder



Never continue using the Plastotherm Hand Extruder, take it apart or make any changes yourself if

- the connecting cable or the plug of the Plastotherm Hand Extruder is damaged.
- the safety devices are damaged.
- a foreign body or fluid has penetrated the inside of the Plastotherm Hand Extruder.
- the device is not functioning normally.
- unusual changes occur in the operating status.



Never splash the Plastotherm Hand Extruder with water: risk of personal injury, short circuit.



The Plastotherm Hand Extruder must not be used in a potentially explosive or inflammable environment.

Make sure you are in a stable standing position when operating the Plastotherm Hand Extruder

The connecting cable, welding wire and the pipe for a possible external air supply must be able to move freely and not be hindered by the user or a third party during operation.

Taking a break / End of work

If you take a break or finish working with the Plastotherm Hand Extruder, it must always be placed on the stand supplied with the hot air hood on.



Make sure the stand and device have a firm base. Place the stand and device in a dry location.

When you finish working with the Plastotherm Hand Extruder, it must cooled down by the air supply, cool enough to touch.

Devices usable in different locations

Reassemble the parts which had to be dismantled for transport purposes and secure before reoperation.

When putting into operation again, proceed according to the instruction handbook.

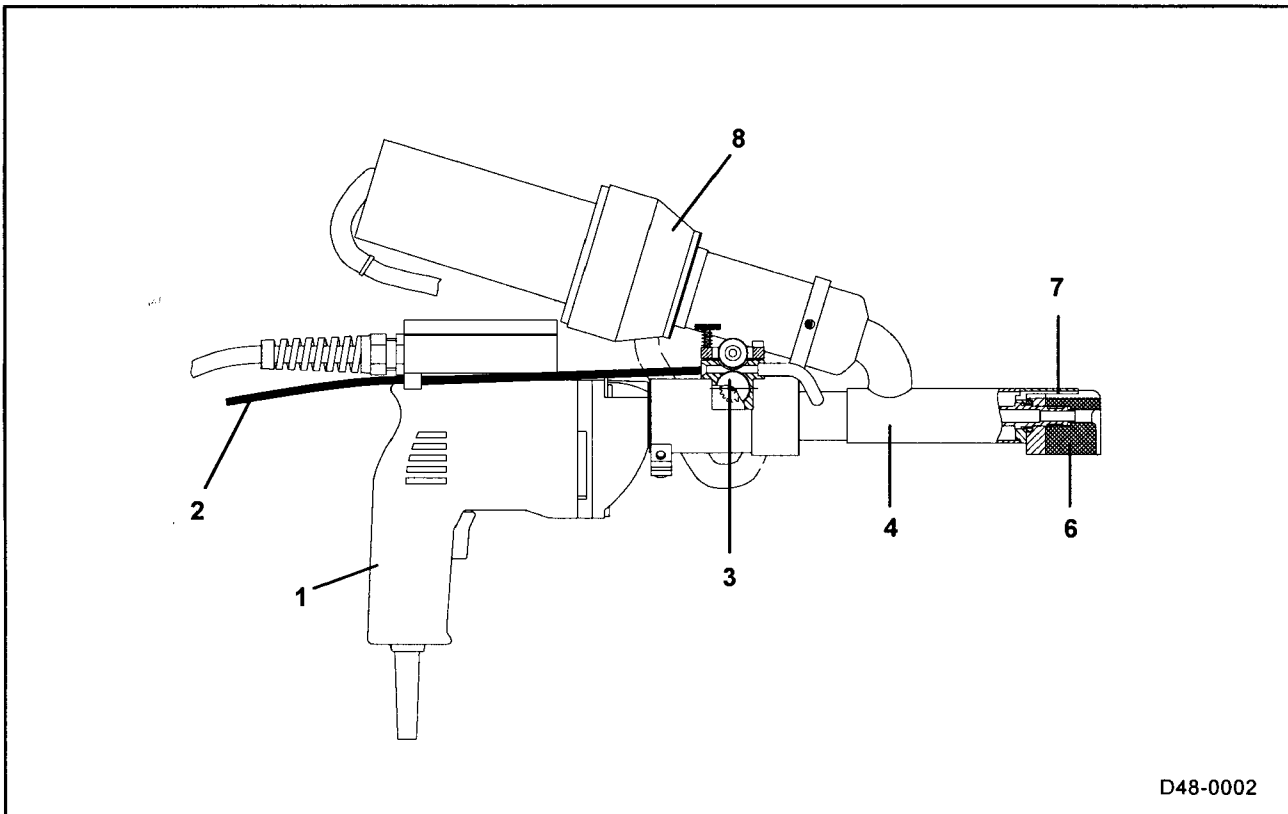
Accessories / Replacement parts

Only those products approved by MUNSCH may be used as additional aggregate/accessory parts (e. g. Plastotherm Airomat- compressor for the air supply). The manufacturer is not liable for any damages which arise from using products and accessories not approved.

Conversion or change of the Plastotherm Hand Extruder are only permitted after consultation with the manufacturer. The replacement parts and authorised accessories approved by the manufacturer serve safety purposes. Use of other parts can cancel the liability for the consequences resulting.

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General

The **Plastotherm Standard** is the smallest device in the **Plastotherm Hand Extruder series**.

Since for the **Plastotherm Standard** the influencing quantities

- temperature of the welding filler
- temperature of the hot air

cannot be set and regulated separately, we must draw your attention to the fact that the **Plastotherm Standard** does not completely correspond to the specifications of the DVS and therefore may not be used for particular welding work.

The **Plastotherm Standard** can cope with the remaining influencing quantities such as

- the mass throughput of the welding filler
- amount of hot air
- welding speed

due to its thought-out and field-proven construction just as well as the professional devices of the **Plastotherm Hand Extruder series**.

Driven by a powerful E motor (1), the welding wire (2) is pulled through the wire feed (3) into the extruder (4) and thus the barrel extruder granulates the welding wire. The granulated material is pressed from the barrel extruder to the extruder nozzle and melted to a homogenous, completely plasticized welding mass. In this status, the welding filler passes through the extruder nozzle and is shaped by a welding shoe (6) corresponding to the geometry of the weld seam to be set.

The material to be joined is preheated by the preheating nozzle (7) integrated in the welding shoe which is supplied by a hot air device (8) with integrated compressed air supply.

The **Plastotherm *Standard*** has a special wire feeder which prevents the welding wire from twisting and provides a constant, uniform wire feed. This feeder improves the homogeneity of the weld seam as faults in the feed caused by twists and kinks also effect the quality of the weld seam.

As there is no separate temperature display of the welding mass or the hot air, we recommend you use a reliable digital thermometer (e. g. Plastotherm Digital - available from MUNSCH Kunststoff-Schweißtechnik GmbH).

The **Plastotherm *Standard*** can be adjusted at three specified levels to three different mass/air temperature combinations.

Inspection

All Plastotherm Hand Extruders are subject to extensive performance inspection before delivery. Only aggregates in perfect technical condition leave the factory.

By observing this instruction handbook and the agreed operating conditions trouble-free operation is guaranteed.

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General

Apart from the instruction handbook and the obligatory regulations for accident prevention applicable in the country of use and application location, the standard technical regulations for safe and professional operation must be observed.

Do not attempt any operation which may be a safety hazard

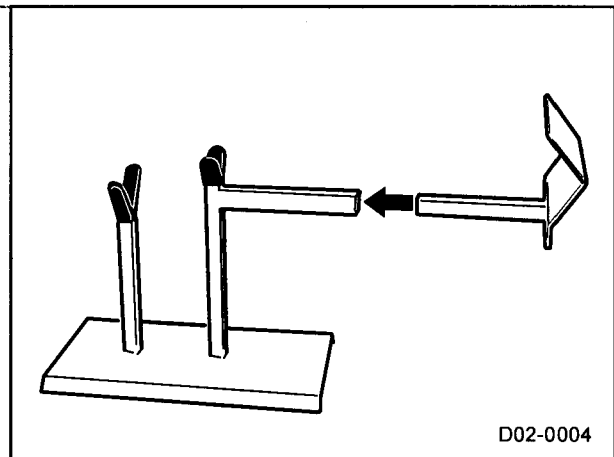
The chapter on safety must be read carefully before putting into/out of operation.

Qualified personnel must be used for putting the Plastotherm Hand Extruder into/out of operation.

Completing the Plastotherm Hand Extruder

Making the stand with hot-air hood ready for operation

- Place the stand in a secure position.
- Place the bar of the hot-air hood into the guide pipe of the stand.

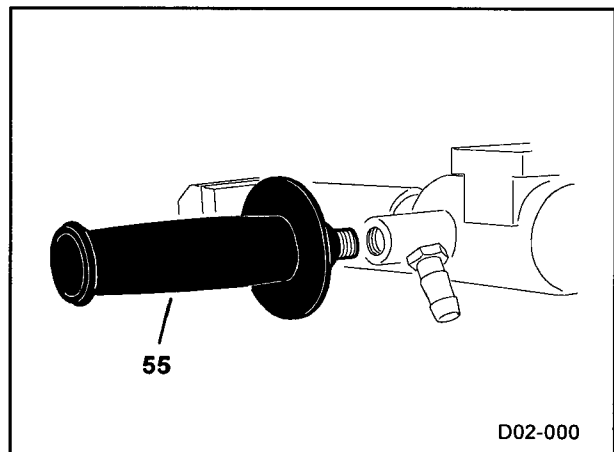


Mounting the handle (55)

- Place the Plastotherm Hand Extruder on the prepared stand.
- Attach the handle (55) and tighten turning clockwise.



The handle must not be able to loosen itself.

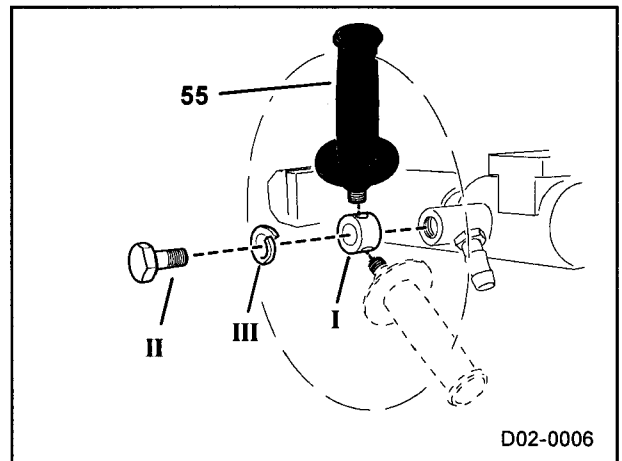


Mounting the angle adjustment for the handle (55)

- Mount the angle adjustment (I) with screw (II) and spring washer (III).
- Attach the handle (55) and tighten turning clockwise.
- Rotate the handle to the required position.
- Tighten the screw (II).



The handle and angle adjustment must not loosen on their own.



Commissioning

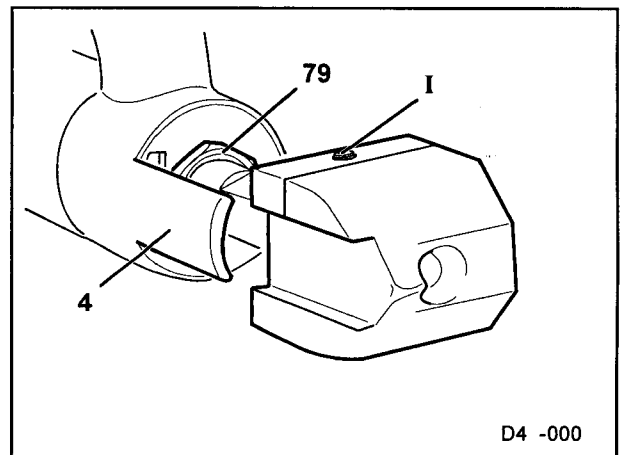
Preparations

Steps already taken:

Complete the Plastotherm Hand Extruder.

Mounting the welding shoe

- Select the welding shoe required for the weld seam in question or shape a welding shoe blank part accordingly.
- When machining a welding shoe blank part, observe the DVS 2207 Part 4 guideline.
- Loosen the hexagonal nut (79) (left-hand thread).
- Rotate the preheating nozzle (4) to the desired position.
- Tighten the hexagonal nut (79) (left-hand thread).
- Mount the welding shoe on the Plastotherm Hand Extruder.
- Tighten the set screw (I).



Putting the Plastotherm Hand Extruder into operation



Observe the chapter on safety.

CAUTION

The Plastotherm Hand Extruder must not be operated without an air supply. Otherwise damage may occur to the Plastotherm Hand Extruder.

Before plugging in the mains plug, check that

- the drive motor is not set to permanent set-up.
- the impact boring machine is switched off.

The heat cover must be positioned on the stand so that the welding shoe lies directly in front of it.

- Plug in the mains plug.

CAUTION

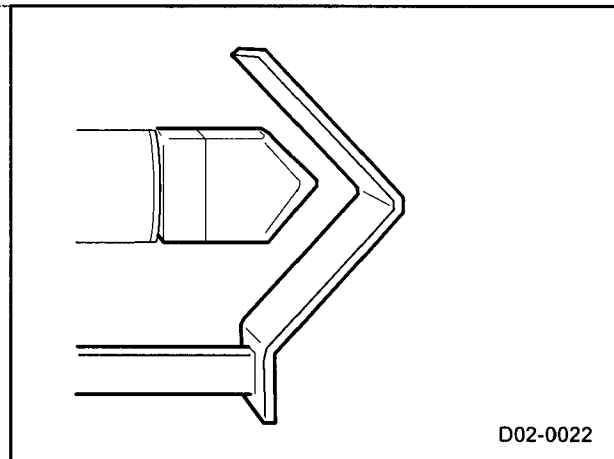
The blower must start automatically for Plastotherm Hand Extruders with their own air supply.

The start switch of the driving device may only be activated if the operating temperature has been reached, as otherwise the Plastotherm Hand Extruder can be damaged by welding filler still hardened in the extruder.

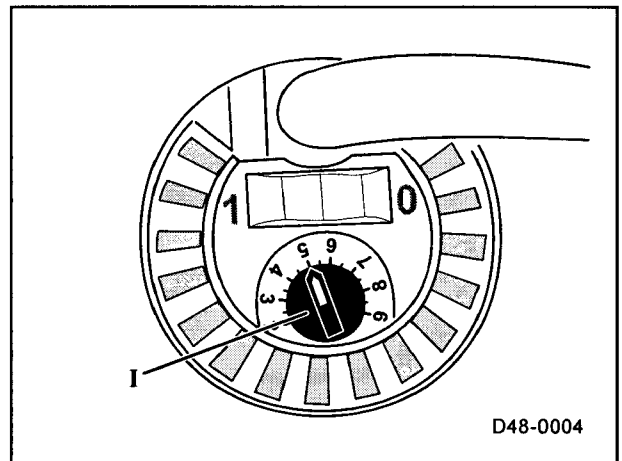
The Plastotherm Standard does not have a start protection switch.

- Check the driving speed of the driving device.

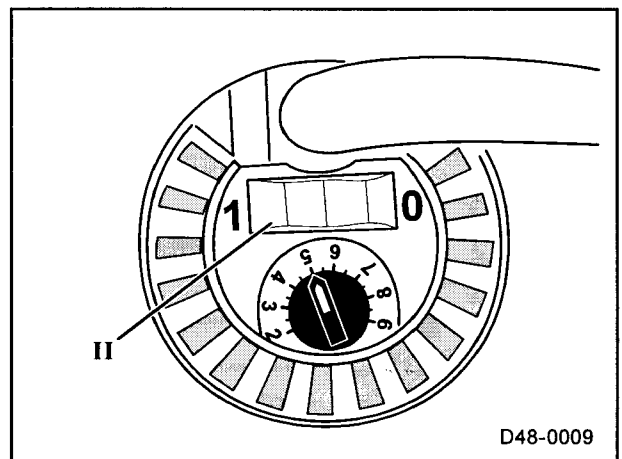
Material	Driving speed [1/min]
<i>Plastotherm Standard</i>	
PP/PE	maximum



- Set the desired temperature with switch (I).
See the specification sheet chapter "Temperature values" for temperature values and switch settings.



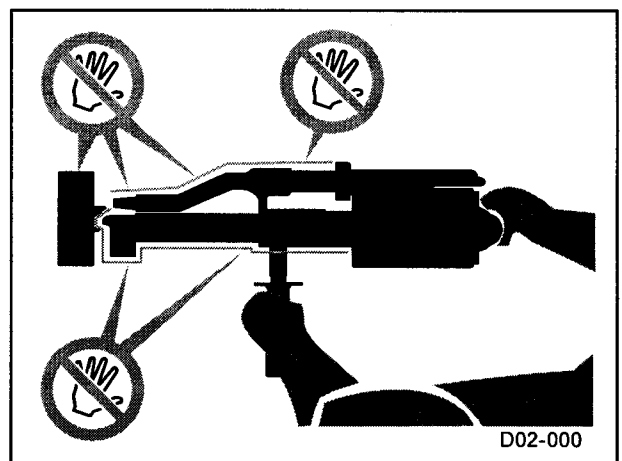
- Switch on the air heater, switch (II) in position "1".



The Plastotherm Hand Extruder reaches its operating temperatures after approx. 10 minutes.



The Plastotherm Hand Extruder may now only be held and touched on the handles intended.



Welding with the Plastotherm Hand Extruder



Observe the "Safety" and "Specification sheet" chapters.

General

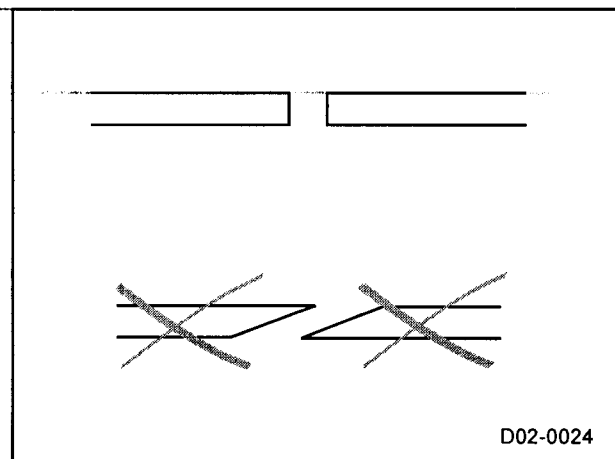
The welding must correspond to the guidelines laid down in the DVS - German Association for Welding Engineering.

The material to be welded as well as the welding filler must be dry and clean.

Feeding the welding filler

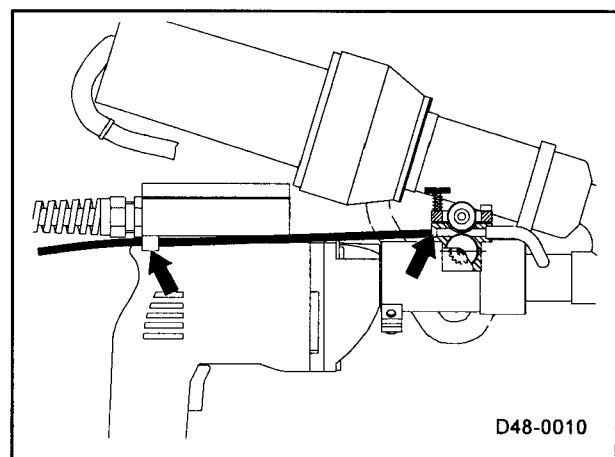
The wire end of the old welding wire (this may still be in the device) and the wire start of the new welding wire **must be straight**.

Always cut off the welding wire straight!



D02-0024

- Introduce the welding wire into the feed housing through both guides.



D48-0010

Changing and ageing of the welding filler

If the welding filler is changed make sure that there is no old welding filler left in the extruder.

To make sure, operate the Plastotherm Hand Extruder **approx. 2 minutes** with the new welding filler.

According to the DVS guidelines, this procedure is also recommended if the Plastotherm Hand Extruder has not been used for a long time, but has been filled with a welding filler.

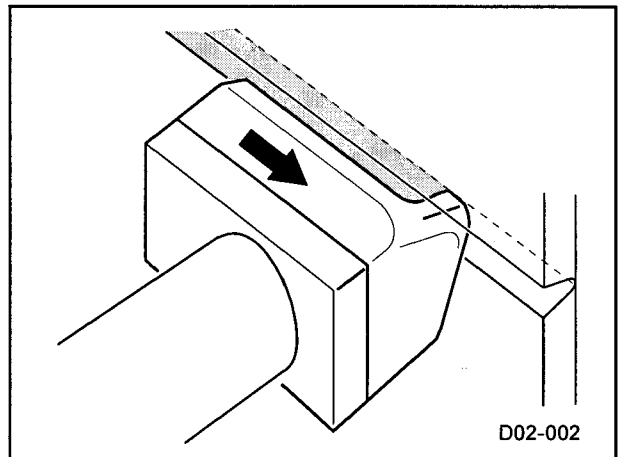


Dispose of any waste carefully and with consideration to the environment!

Welding direction / speed

The welding shoe (and thus the Plastotherm Hand Extruder) is moved in the welding direction by the "mass pressure" of the emerging welding filler.

Please refer to the DVS guidelines for the welding speed.



Taking a break



Observe the chapter on safety.

Do not leave the Plastotherm Hand Extruder unattended.

The compressed air supply must be retained.

If you take a break from welding, the driving device must be switched off and the Plastotherm Hand Extruder placed on the stand supplied.

De-commissioning



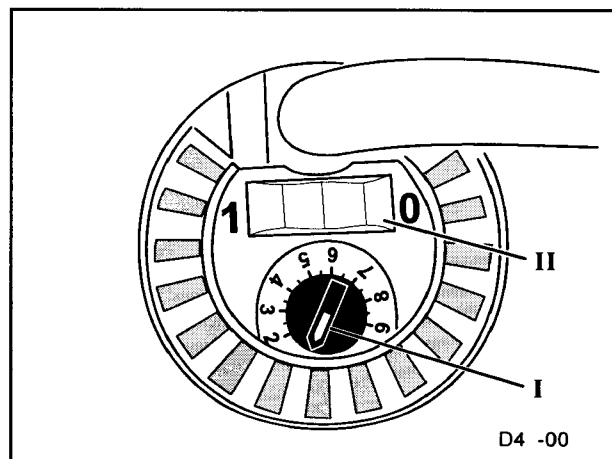
Observe the chapter on safety.

– When you finish welding, the driving device must be switched off and the Plastotherm Hand Extruder placed on the stand supplied.



Do not leave the Plastotherm Hand Extruder unattended.

- Rotate switch (I) to the "0" position.
- Wait at least 10 minutes before you switch off the air heater, switch (II) in the "o" position.
- Pull out the mains plug.



Transport / Storage

Please refer to the Transport/Storage chapter for information on transport and storage.



Even after 15 minutes there may still be danger of burning from blank metal parts!

Do not use water or other cooling agents to speed up the cooling process!

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General



Before carrying out any maintenance work on the device, pull out the mains plug!

Maintenance work on electric tools may only be carried out by skilled electricians.



The Plastotherm Hand Extruder and the stand with the heat cover must be cool enough to touch.

Observe the chapter on *Safety*.

Maintenance work may only be carried out by suitable specialist personnel or by our customer services' employees.

To make sure that the Plastotherm Hand Extruders will function safely during their life within their intended use, we recommend:

- that all maintenance, inspection and assembly work be executed by authorised and qualified specialist personnel who have gained sufficient knowledge by reading the instruction handbook thoroughly.
- that all work be executed when the device is at a standstill.
- directly after concluding any work that all safety and protection devices are again attached and/or made functional.

During maintenance, make sure that the Plastotherm Hand Extruder and/or its individual parts is/are stable.

Apart from the instruction book and the obligatory regulations for accident prevention applicable in the country of use and application location, the standard technical regulations for safe and professional operation must be observed.

Do not attempt any operation which may be a safety hazard.



Activities not mentioned here may only be carried out by the manufacturer!

Maintenance / Inspection

Plastotherm Hand Extruder

CAUTION

After approx. **500 operating hours**, the Plastotherm Hand Extruder including the driving device must be cleaned, checked and refilled with new grease. This must only be done by the manufacturer.

Carbon brushes

The carbon brushes of the driving device must be checked after approx. **100 operating hours** and if necessary renewed. This may only be carried out by a skilled electrician.

Worm gearing

not Plastotherm *Granulat*

The worm gearing must be filled with new grease after approx. **200 operating hours**.

Type: Molykote Gn-plus

Market name	Filling capacity
Standard	12 g ± 2 g

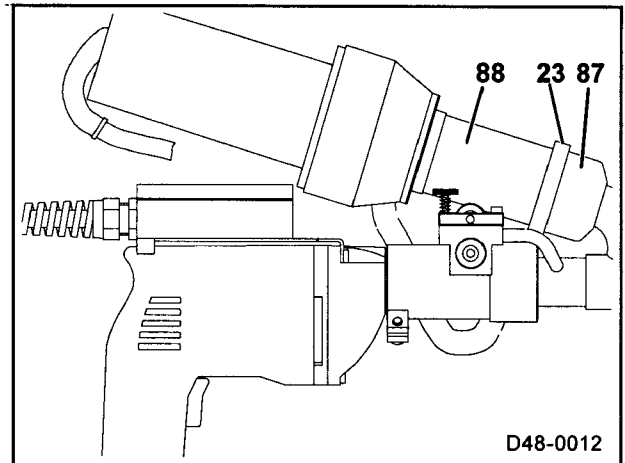


The Plastotherm Hand Extruder must be cool enough to touch. The mains plug must be pulled out.

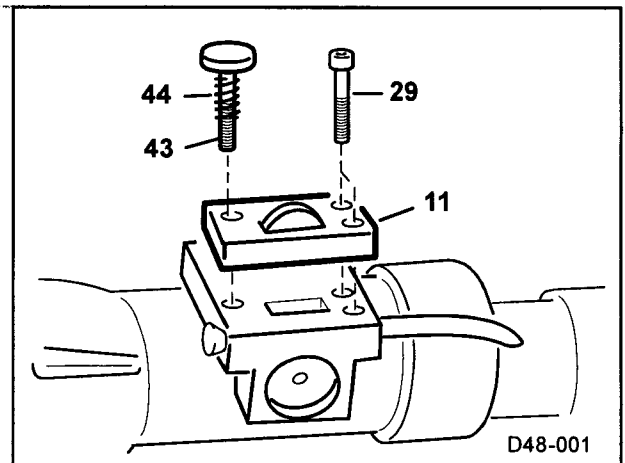
- Loosen the set screw (23).
- Pull the hot air blower (88) out of the internal guide (87).

CAUTION

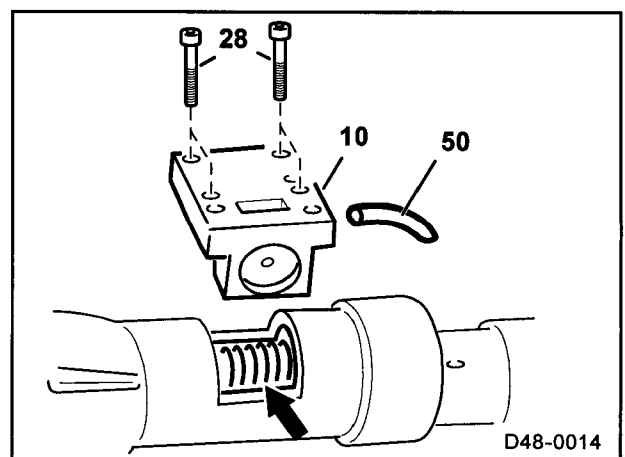
Make sure no dirt penetrates the hot air blower. Assembly takes place in reverse order.



- Loosen the hexagon socket screw (29), unscrew. Loosen the knurled-head screw (43) and screw out with spring (44). Lift the pressure lever (11).



- Loosen the hexagon socket screw (28), unscrew.
- Lift off the feed housing (10) with wire feed (50).
- Clean the worm gear in the feed housing.
- Clean the visible part of the barrel extruder. Fill with new grease (arrow).

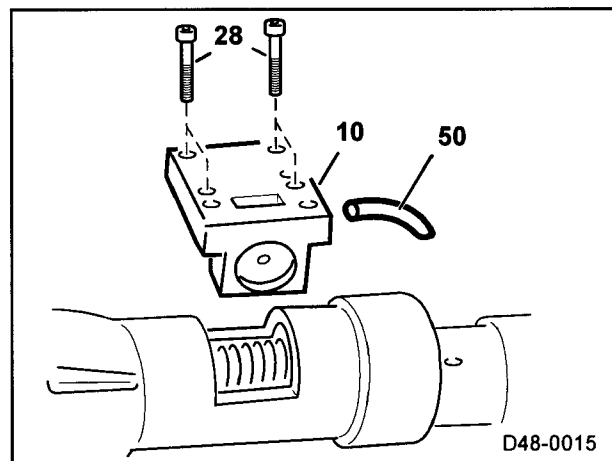


- Replace the feed housing (10) with wire feed (50).

CAUTION

Take note of the assembly direction!

- Insert the hexagon socket screw (28) and rotate until there is a slight play between the conveyor feed (10) and the extruder housing.



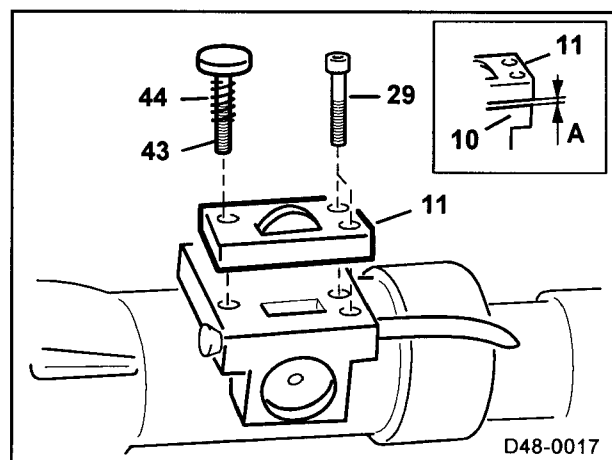
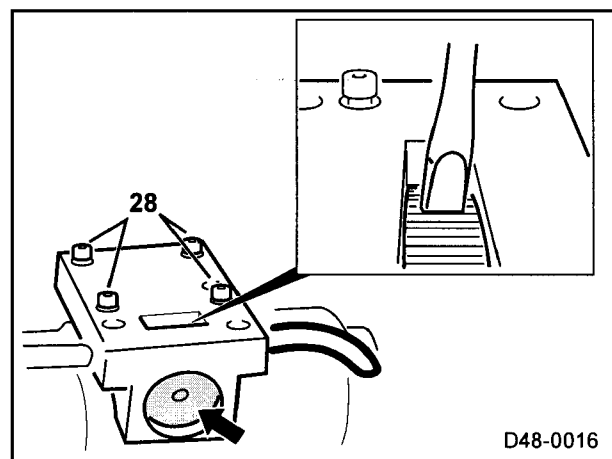
- Press down the feed housing by hand, at the same time move the helical gear wheel (arrow) with a suitable screw driver so that the worm gear in the feed housing engages in the barrel extruder without force being necessary.

CAUTION

The feed housing must lie flush with the extruder housing.

The driving device must not be switched on while you are doing this, as damage may occur to the Plastotherm Hand Extruder

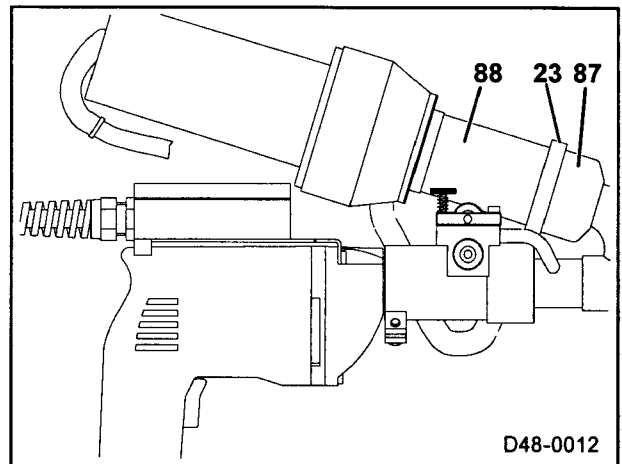
- Tighten the hexagon socket screw (28).
- Attach the pressure lever (11). Insert the hexagon socket screw (29), tighten. Insert the knurled-head screw (43) with spring (44), tighten.
- Between the pressure lever (11) and the feed housing (10) a distance of $A = 1 \text{ mm}$ must be set on the side to the hexagon socket screw (29).



Note

If the welding wire is not being fed, adjust the pressure with the knurled-head screw (43).

- Insert the hot air blower (88) into the internal guide (87).
- Tighten the set screw (23).



Power supply cable

If the power supply cable is damaged, this must be completely exchanged. "Patched" cables are hazardous.



First pull out the mains plug!

This work may only be carried out by skilled electricians.

Only the following cables may be used:

Market name	Cable name
Hand Extruder	
Plastotherm Standard	H07RN-F, 2 x 1.5 mm ²

Routine maintenance

The Plastotherm Hand Extruder is relatively insensitive to contamination.

However we still recommend you clean the Plastotherm Hand Extruder after every use.



Do not use corrosive cleaning agents.

When removing obstinate residues, make sure the Plastotherm Hand Extruder, in particular the connecting cables, are not damaged.

Clean the display window of the temperature controller with a soft cloth.

Contents

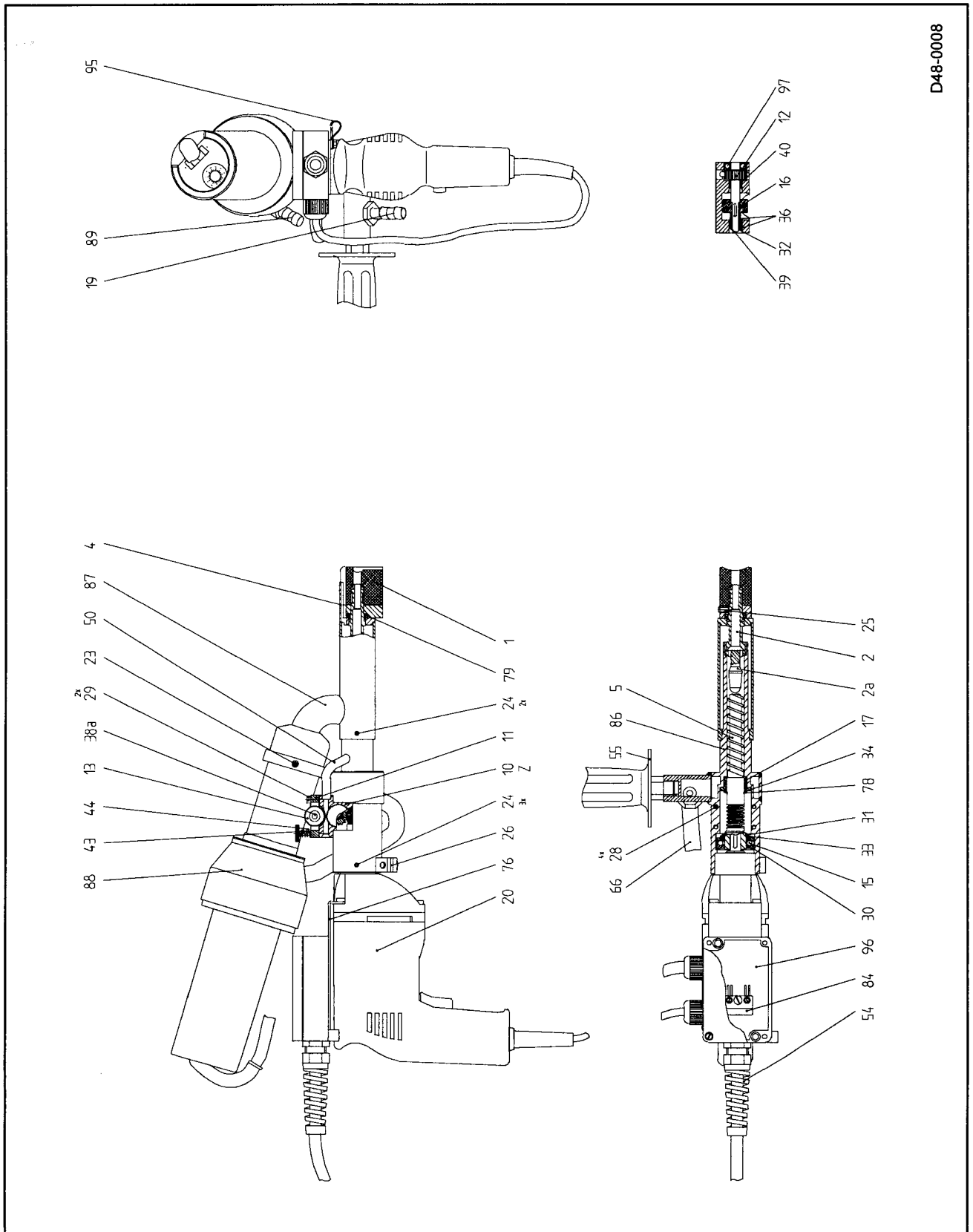
Replacement parts order	E - 2
Plastotherm <i>Standard</i>	E - 3
Drive	E - 6
Hot-air blower	E - 9

Replacement parts order

The following information is required:

- Item number
- Serial number

Plastotherm Standard



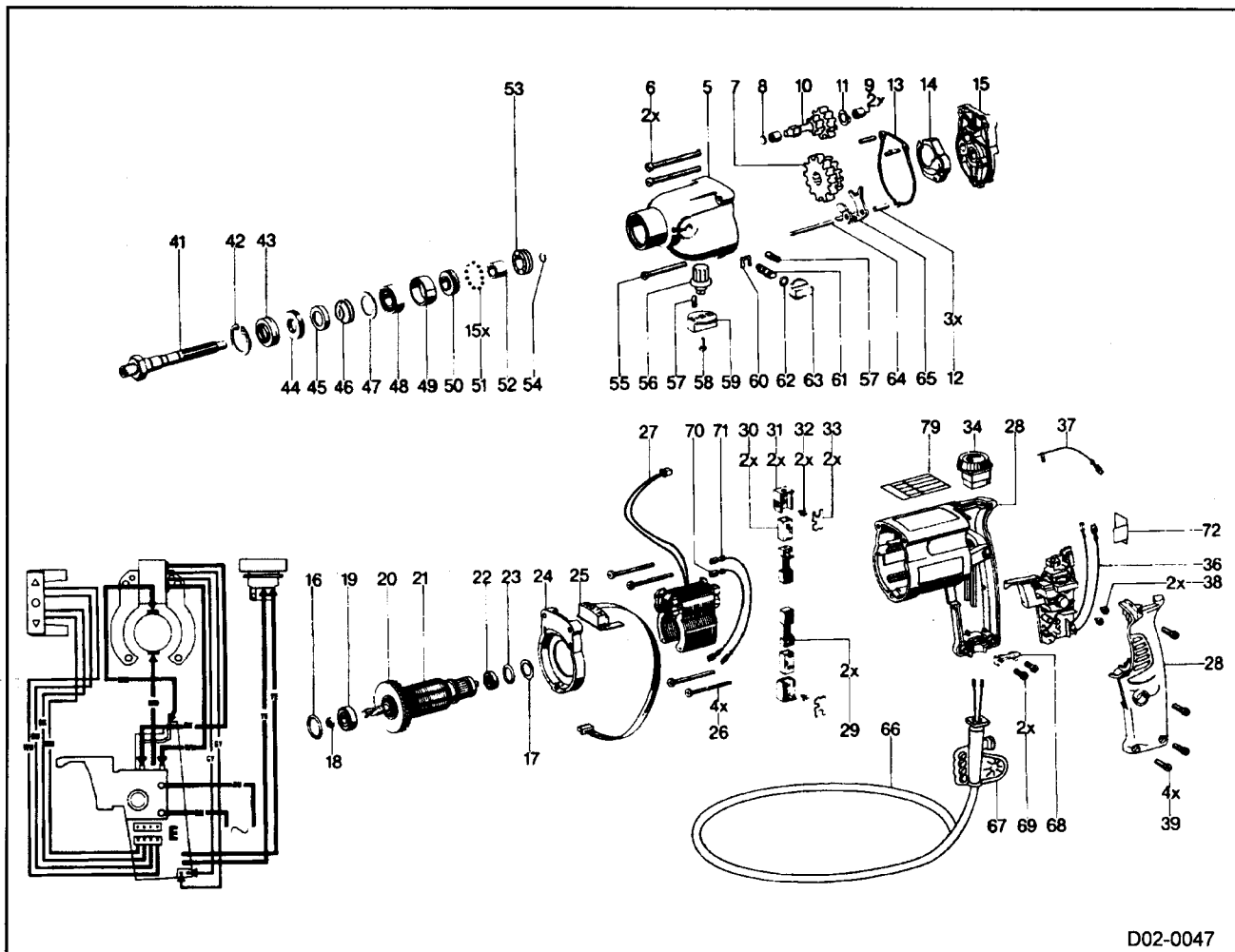
D48-0008

Plastotherm *Standard*

Item no.	Qty.	Designation
1	1	welding shoe with mount
	1	shoe with
	4	oval head sheet metal screw
2	1	nozzle
2a	1	compression nozzle
4	1	preheating nozzle
5	1	extruder screw
10	1	conveyer casing
11	1	pressure lever
12	1	lower conveyer roller with
	1	feather key
13	1	upper conveyer roller with
	1	slide bearing
15	1	axial ball bearing
16	1	screw impeller
17	1	flush bearing
19	1	air connection with
	1	sealing
20	1	drive with 230 V
	1	drive with 110 V
	1	feather key
23	1	set screw
24	5	set screw
25	1	set screw
26	1	allen screw
28	4	allen screw
29	2	allen screw
30	1	circlip
31	1	circlip
32	1	circlip
33	1	supporting washer
34	1	supporting washer
36	2	feather shim
38a	1	set screw with
	2	feather shim
39	1	slide bearing
40	1	slide bearing
43	1	knurled head screw
44	1	pressure spring
50	1	wire guide
54	1	screwed cable guide
55	1	handle
66	1	air hose

Item no.	Qty.	Designation
76	1	holding angle with
	1	fillister head screw
	1	fillister head screw
	1	hexagonal nut
	1	plain washer
78	1	circlip
79	1	hexagonal nut
84	1	mains connection clamp with
	1	fillister head screw
86	1	extruder body with
87	1	integrated air-unit mounting
88	1	hot-air blower 230 V
	1	hot-air blower 110 V
89	1	air connection
95	1	wire support
96	1	terminal box with
	2	screwed cable guide
97	1	ball bearing
	1	stand
	1	hot-air hood

Drive

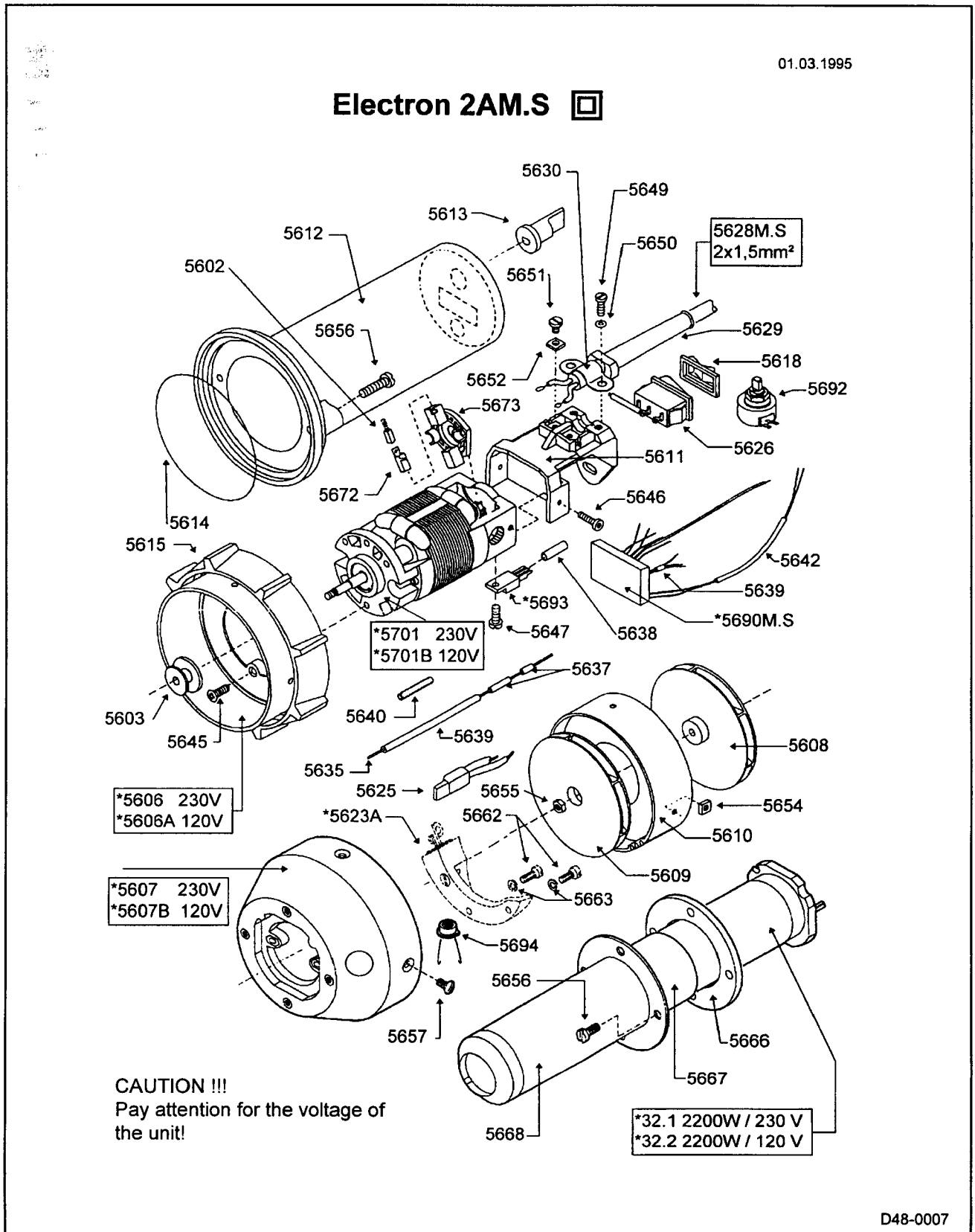


Item no.	Qty.	Designation	Reference no.
5	1	coupling casing, complete	31 601 448
6	2	oval head sheet metal screw	34 170 186
7	1	sliding block	34 000 166
8	1	check disc	33 900 129
9	2	bush	14 311 143
10	1	pinion shaft with safety coupling	31 601 445
11	1	check disk	33 900 109
12	3	cylinder bush	14 216 048
13	1	seal	33 921 007
14	1	grease cap	33 903 961
15	1	gear box flange	31 600 675
16	1	o-ring	14 319 257
17	1	washer	14 115 340
18	1	sealing	34 335 650
19	1	ball bearing 8 x 22 x 7	14 311 009
20	1	fan	33 000 086

Item no.	Qty.	Designation	Reference no.
21	1	armature, complete 115 V	31 000 484
	1	armature, complete 230 V	31 000 485
22	1	ball bearing 6 x 19 x 6	14 311 223
23	1	o-ring	14 319 243
24	1	intermediate flange	34 335 935
25	1	diode housing, complete	31 601 345
26	1	oval head sheet metal screw	14 111 826
27	1	inductor stampings with windings 115 V	31 100 766
		inductor stampings with windings 230 V	31 100 738
28	1	motor frame with cover plate	31 501 497
29	2	carbon brush 115 V	31 301 079
		carbon brush 230 V	34 301 118
30	2	carbon guide	34 300 023
31	2	carbon holder	34 335 338
32	2	sheet metal screw with countersunk	34 170 116
33	2	cover plate	33 903 482
34	1	potentiometer	34 340 408
36	1	electronic unit 115 V	34 306 666
		electronic unit 230 V	34 306 551
37	1	stranded wire conductor 115 V	34 448 884
		stranded wire conductor 230 V	34 448 856
38	2	oval head screw	14 111 697
39	4	oval head sheet metal screw	14 111 706
41	1	drill spindle	
42	1	circlip	14 118 071
43	1	distance ring	34 335 921
44	1	felt ring	14 319 370
45	1	distance metal sheet	33 900 266
46	1	conical wire spring	34 202 067
47	1	washer	14 115 322
48	1	ball bearing 15 x 32 x 9	14 311 022
49	1	distance ring	33 900 267
50	1	notched disc	34 105 034
51	15	ball	14 312 002
52	1	bush	34 104 638
53	1	notched disc	34 105 025
54	1	snap ring	34 202 021
55	1	oval head screw	34 170 181
56	1	gear shaft, complete	31 601 728
57	1	stop bolt	34 200 114
58	1	oval head sheet metal screw	14 111 684
59	1	gear shift button, complete	31 601 238
60	1	safety metal sheet	33 900 272
61	1	gear bolt-shaft, complete	31 601 458
62	1	o-ring	14 319 006
63	1	gear shift button, complete	31 601 235
64	1	guide bolt	34 154 001
65	1	gear claw	33 919 001
66	1	connection cable	

Item no.	Qty.	Designation	Reference no.
67	1	cable bushing	34 410 059
68	1	cable clip	34 337 171
69	2	oval head sheet metal screw	14 111 873
70	1	stranded wire, complete	34 448 880
71	1	stranded wire, complete	34 448 861
72	1	cover plate	33 911 051

Hot-air blower



Hot-air blower

Item no.	Designation
32.1	heating element 2200 Watt / 230 V
32.2	heating element 2200 Watt / 120 V
5602	carbon brush no. 71, for 230 V device
5603	steel sleeve A2
5606	turbine housing lower part
5607	turbine housing upper part
5608	turbine first stage
5609	turbine second stage
5610	distributor
5611	clamp strap complete
5612	handle green
5613	control knob red
5614	o-Ring
5615	rubber ring with cam
5618	protecting cap (rubber)
5623A	triac 40A, 120 V with heat sink
5625	thermal conductor
5626	rocker switch complete with protecting cap
5628M.S	rubber-insulated cable 2 x 1.5 mm ² , 0.8 m long
5629	anti-kink sleeve 9.6 x 75 mm
5630	strain-relief strap
5635	cord
5637	shrinkdown tube 3/8", 30 x 12 mm
5638	shrinkdown tube 1/8", 3 x 12 mm
5639	flex. insulating tube
5640	adasil-tube 2.4 x 0.5 x 35 mm
5642	flex. insulating tube 3.0 x 0.4 x 130 mm
5645	Taptite countersunk screw M4 x 14 mm
5646	Taptite half-round screw M3.5 x 8 mm
5647	fillister head screw M3.5 x 6 mm, coated
5649	fillister head screw M3 x 10 mm
5650	serrated lock washer M3
5651	Pan Head screw M4 x 6 mm
5652	torsion protecting washer 8 x 8 x 4.2 mm
5654	square nut M3.5
5655	hexagon nut M5
5656	fillister-head screw M4 x 10 mm
5657	raised countersunk screw M3.5 x 8 mm
5666	seal 50 x 30 x 4 mm
5667	samicanite tube 95 mm size
5668	pipe adapter
5672	carbon brush guide
5673	brush rocker
5690	electronics 230 V
5690B	electronics 120 V
5692	potentiometer 20 kΩ
5693	triac 25A, 230 V

Item no.	Designation
5694	photoresistor
5701	motor 230 V (high-speed)
5701B	motor 120 V (high-speed)

Fault finding



The following table contains malfunctions which may occur on the Plastotherm Hand Extruder and information on the possible causes and how to remove them (Fault diagnosis table).


If malfunctions occur which are not mentioned here or if these do not lead back to the cause specified, please contact MUNSCH Kunststoff-Schweißtechnik GmbH.

Malfunction	Error no.
Drive motor does not start	13, 14, 19, 20, 27, 24, 3, 23, 8, 4
Drive motor switches off	19, 21, 24, 27, 23, 13, 14, 7, 4
No welding wire feed	1, 2, 28, 26
No weld deposit conveyed out of the welding shoe	22
Welding deposit capacity decreases during operation	1, 2, 22, 21
No compressed air	10, 11, 12, 19
No function of internal air supply	10, 19, 29
No hot air	9, 29, 24, 19
Hot air temperature lies under the nominal temperature	15, 5, 29, 24, 3, 4
Welding deposit lies under the nominal temperature	16, 30, 24, 3, 4
Extruder remains cold	30, 24, 19, 3, 4
The temperature has risen above the range set. Temperature display on the controller: F F F ⁴⁾	3, 4
Temperature display on the controller: F F F flashing ⁴⁾	3
Temperature display on the controller: - - - flashing ⁴⁾	6
Control fluctuates ⁴⁾	25, 18

Fault diagnosis

Fault no.	Possible cause	Corrective action
1	Welding wire diameter smaller or too small	Set the wire feed with knurled-head screw. If necessary use a larger welding wire diameter.
2	Wire feed set too loosely	Set the wire feed with knurled-head screw.
3	Temperature sensor defective	1)
4	Temperature controller defective	1)
5	Air throughput too high	Reduce the air to the specified amount.
6	Polarity of the temperature sensor is transposed	1)
7	Threshold value for the start protection temperature is too near the nominal temperature	Set the nominal temperature and the start protection temperature threshold value so that the difference between the two is approx. 10 °C. Note Start protection temperature threshold value ²⁾ < nominal temperature
8	Threshold value for the start protection temperature lies above the nominal temperature	Set the nominal temperature and the start protection temperature threshold value so that the difference between the two is approx. 10 °C. Note Start protection temperature threshold value ²⁾ < nominal temperature
9	Heating for the internal air supply not switched on	Switch on the heating for the internal air supply.
10	Cable connections defective	Check cable connections. ¹⁾
11	External air supply not connected ⁴⁾	Connect external air supply.
12	External air supply not functioning ⁶⁾	Switch on external air supply. Check the external air supply according to its own manual for function errors, or have it checked.
13	Hot air temperature lies below the start protection temperature threshold value	Let the Plastotherm Hand Extruder heat up. Air flow too high -> lower air flow.
14	Welding deposit temperature lies under the start protection temperature threshold value	Let the Plastotherm Hand Extruder heat up.

Fault no.	Possible cause	Corrective action
15	Preheating time for hot air too short	Let the Plastotherm Hand Extruder heat up.
16	Preheating time for welding deposit too short	Let the Plastotherm Hand Extruder heat up.
17	Tape heating defective	1)
18	Air supply not constant	With external air supply: - Check air supply. ¹⁾ With internal air supply: 1)
19	No power supply	Produce power supply.
20	Incorrect nominal voltage in power supply	Nominal voltage > permissible voltage Check the Plastotherm Hand Extruder acc. to VDE 0701, or send to MUNSCH Kunststoff-Schweißtechnik GmbH. Nominal voltage < required voltage 1)
21	Extension cable heats up	- Unroll the cable reel. - Check the cable cross section (see also chapter on Safety).
22	Extruder nozzle blocked with foreign bodies	Clean extruder.  Extruder nozzle - left-handed thread For Plastotherm <i>Flex</i> , <i>Profit</i> and <i>Granulat</i> , disassemble the mass temperature sensor first.
23	Defect in the driving device	1)
24	Defect in the electronic control	1)
25	Incorrect programming of controller	1)
26	Welding wire with slanted cut ³⁾	Remove the welding wire, if necessary open the feed housing.  Observe the instructions in the Maintenance chapter! Observe the information on operation!

Fault no.	Possible cause	Corrective action
27	Carbon brushes of the driving motor defective	Exchange the carbon brushes.  Observe the instructions in the Maintenance and Safety chapters!
28	Worm gearing (Pos. 16) defective	1)
29	Hot air device defective	1)

- 1) Inquire at MUNSCH Kunststoff-Schweißtechnik GmbH
- 2) Factory setting for start protection temperature: see temperature table in the *Specification sheet* chapter
- 3) not Plastotherm *Granulat*
- 4) not Plastotherm *Standard*
- 5) with external air supply, not Plastotherm *Standard*
- 6) not Plastotherm *Autoair*

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Safety measures



Observe the chapter on Safety.

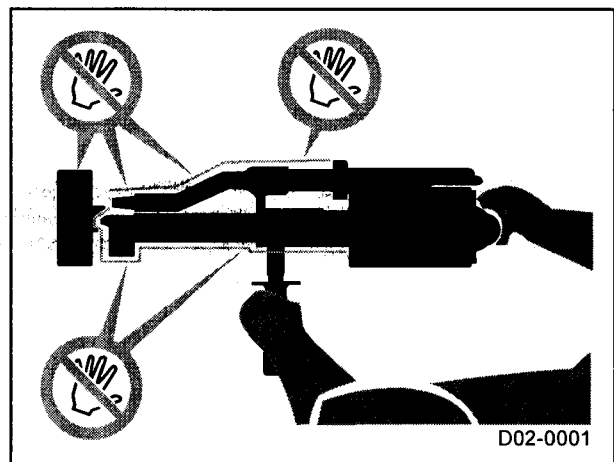
Before transporting or storing, the Plastotherm Hand Extruder must have cooled down enough to touch.

Contact



The Plastotherm Hand Extruder may only be held and touched on the handles intended.

- Bare metal parts (also the heat cover of the stand) must not be touched with or without gloves before you make sure that they have cooled down to hand temperature. These parts reach temperatures of up to 350 °C during operation.
- Attachments may be damaged by the weight of the Plastotherm Hand Extruder or may be impaired in their functioning.



Do not use synthetic gloves!

The Plastotherm Hand Extruder may never be transported or stored if the attachments are exposed to a mechanical load.

We recommend you use the original MUNSCH packaging or the transport box *Plastotherm Transport*.

Storage conditions

Protect the Plastotherm Hand Extruder from unauthorised access.

Store in a dry place.

Sending to MUNSCH

If you have to send the Plastotherm Hand Extruder to MUNSCH Kunststoff-Schweißtechnik GmbH, then the original packaging must always be used.

Preservation

Special preservation is not required.

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Specifications

Sales identification	Plastotherm Standard
Type identification	SKR
Welding materials	PP, PE
Welding performance	1.0 kg/h with 3 mm welding wire-Ø 1.8 kg/h with 4 mm welding wire-Ø
Welding wire	Circular, 3 and 4 mm Ø
Wire feed	Feed roller
Application area	– Container construction, wall thicknesses of 4 – 12 mm – Foils
Weight	5 kg
Drive	1000 W, 230 V or 110 V ac voltage ¹⁾
Extruder heater	Hot air
Air heater	2260 W, 230 V or 110 V ac voltage ¹⁾
Air supply	Internal air supply <i>Autoair</i>
Features	– Preheating integrated in welding shoe – Welding shoe can be rotated about 360°

1) ac voltage variants see imprint on rating plate

Scope of delivery

Qty	Identification
1 x	Plastotherm Hand Extruder
1 x	Handle
1 x	Angle adjustment for handle
1 x	Stand with hot-air hood
1 x	Welding shoe blank part 40 mm
1 x	Welding shoe blank part 60 mm
1 x	Welding shoe blank part 40 mm, machined No. 42.0108 K ¹⁾
1 x	Welding shoe blank part 40 mm, machined No. 42.0125 F ²⁾

1) Container construction design

2) Foil design

Temperature table

Material	Switch position	Mass temperature	Air temperature
PP/PE	Level 5	approx. 210 °C	approx. 240 °C
	Level 6	approx. 220 °C	approx. 250 °C
	Level 6,5	approx. 230 °C	approx. 280 °C

The airtemperatures must be checked with an external measuring instrument. If deviations occur, you may have to correct the switch setting.



Certificate of Warranty

.....
.....
.....

Name and address of Purchaser

Device type: **Plastotherm *Standard***
Design designation: **SKR**
Serial No.
Purchase date:

Your Warranty

With this warranty MUNSCH Kunststoff-Schweißtechnik GmbH guarantees that from the time of the first acquisition, this device shows no material or manufacturing defect. If during the period of warranty device defects prove to be a result of material or manufacturing faults, the dealers will, in accordance with the following conditions, repair the device without invoicing for labour or material costs, and according to their judgement will exchange the device itself or the damaged parts.

.....
Stamp and signature of dealer

1. The manufacturer guarantees a flawless performance corresponding to the respective state of the art of the type of the purchased article for six months from the date of delivery.
2. The purchaser is obliged to check the article delivered immediately after receipt to ensure it is free of defects and complete.
3. The purchaser is entitled to have defects removed and damage caused by them on other parts of the purchased article (subsequent reconditioning).
The following procedure applies:
 - a) The Purchaser can make a claim with his dealer or with organisations recognised by the manufacturer for care of the purchased article.
The Purchaser is obliged to give notice of defects immediately after they have been established to the organisation enlisted in writing or have the organisation register these.
 - b) Subsequent reconditioning is to take place without delay as per the technical requirements by replacement or repair of defective parts without invoicing for costs which are required for the purpose of the subsequent reconditioning. Replaced parts become the property of the manufacturer.
If due to the subsequent reconditioning additional maintenance work prescribed by the manufacturer becomes necessary, the manufacturer will take over the costs including the costs of materials and lubrications required.
 - c) For those parts assembled during the subsequent reconditioning warranty is assured up to the end of the warranty period of the purchased article based on the contract of sale.
 - d) For the warranty to come into force this warranty certificate must be produced before each repair.
4. If the defects cannot be rectified or if further subsequent reconditioning attempts are unreasonable for the Purchaser, the Purchaser can, instead of subsequent reconditioning, demand annulment (cancellation of the contract of sale) or diminution (reduction of remuneration). There is no claim for compensation delivery.
5. Warranty obligations are not affected by change of ownership of the purchased article.
6. The warranty does not include defects which have arisen if
 - the Purchaser has not reported a fault as per article 3a) or upon request not immediately offered the opportunity for subsequent reconditioning or
 - the purchased article has not been used as intended or overloaded
 - or the purchased article has previously been subject to repair, maintenance or care by an organisation not recognised by the manufacturer and the Purchaser had to recognise this or
 - parts have been mounted in the purchased article the use of which the manufacturer has not approved or the purchased article has been modified in a way not approved by the manufacturer or
 - the Purchaser has not followed the regulations found in the user's manual accompanying the purchased article (e.g. on use, care and maintenance) or
 - the serial number has been removed or made illegible by the Purchaser.
7. Natural wear and tear is excluded from the warranty.
8. Accidents, Acts of God or other causes not to be accounted for by the manufacturer, in particular damage by lightning, water, fire, ... are excluded from this warranty.
9. The warranty claims named above become invalid after expiry of the warranty period as per article 1. For defects established within the warranty period but not removed up to its expiry, warranty is assured until the defect is removed. The period of limitation is suspended for this defect.