

# Working instructions Translation

## Socket Fusion Tool

WIDOS HM 0090



WIDOS HM 0160



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Model: WIDOS HM 0090  
WIDOS HM 0160

Type: Socket Fusion Tool

Serial number, year of construction: see type plate

### Kundeneintragungen

Inventory-No.:

Place of working:

### Order of spare parts and sales services:

#### Address of manufacturer

WIDOS  
Wilhelm Dommer Söhne GmbH  
Einsteinstr. 5  
D-71254 Ditzingen  
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### Purpose of the document

These working instructions give you information about all important questions which refer to the construction and the safe working of your device.

Just as we are, you are obliged to engage in these working instructions, as well.

Not only to run your device economically but also to avoid damages and injuries.

Should questions arise, contact our advisers in the factory or in our subsidiary companies.

We will help you with pleasure.

In the interest of a continuous improve of our products we kindly ask you to inform us about problems and defects which may occur in practice.

Thank you.

### Structure of the working instructions

This manual is arranged in chapters which belong to the different using phases of the device. Therefore the searched information can be easily found.

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## 1. Description of product

This chapter gives important basic information about the product and its prescribed use. All technical details of the device are put together as a general arrangement.

### 1.1. Application and prescribed use

The WIDOS **HM0090; HM0160** are made for heating element socket welding of PE, PP, PVDF and PB pipes and fittings in the workshop and on building sites.

The weldable diameters of the **Socket Fusion Tools** are as follows:

	<b>OD</b>
HM0090	16 - 90
HM0160	16 - 125

### 1.2. Vorsichtsmaßnahmen

In case of wrong use, wrong operation or wrong maintenance the heating element itself or products being in the surrounding can be damaged or destroyed.

Persons being in the endangered area may be injured.

Therefore these working instructions have to be thoroughly read and the corresponding safety advices must necessarily be adhered to.

All use going beyond is not prescribed.

The manufacturer is not responsible for damages caused by misuse.

The risk is held only by the user.

Prescribed use also means

- Following all advices of the working instructions and
- Performing of repair and maintenance works.

### 1.3. Conformity

The device corresponds in its construction to the valid recommendations of the European Community as well as to the relevant European standards. The development, manufacturing and mounting of the device were made very carefully.

### 1.4. Designation of the product

The product is designated by a type plate at the frame.

It contains the type of the device, the serial number and the year of construction.

## 1.5. Technical Data

### 1.5.1. HM0090

Power:	650 W
Voltage:	230 V ( $\pm 10\%$ )
Current:	2,7 A
Frequency:	50 Hz
Outside- $\varnothing$ :	95 mm
mounted elements:	control lamps cable with connector
Weight:	1,6 kg

### 1.5.2. HM0160

Power:	1200 W	1200 W
Voltage:	230 V ( $\pm 10\%$ )	110 V
Current:	5,2 A	10,5 A
Frequency:	50 Hz	60 Hz
Outside- $\varnothing$ :	180 mm	180 mm
mounted elements:	control lamps cable with connector	control lamps cable with connector
Weight:	3,2 kg	3,2 kg

## 2. Safety rules

A basic premise for working safely and without disturbances is the knowledge of the safety signs and safety rules.

- These working instructions provide you with the most important information to run the device safely.
- The safety information must be read by all persons working with the device.

### 2.1. Explanation of the different symbols

In der Betriebsanleitung werden folgende Benennungen und Zeichen für Gefährdungen verwendet:



This symbol gives important indications for the proper use of the hand-held heating tool.

- The disrespect of these indications may conduct to malfunctions and damages on the hand-held heating tool or on goods in the surrounding.



This symbol means a possibly danger for the life and the health of persons.

- The disrespect of these indications may have heavy consequences for the health.



This symbol means a possible dangerous situation due to hot surfaces.

- The disrespect of these indications may conduct to heavy burns, respectively to self-ignition or even fire.

**The regulations for prevention of accidents are valid (UVV).**

### 2.2. Obligations of the owner and organizing measures

The owner is obliged only to let persons work with the device who

- know about basic safety and accident prevention rules and are instructed into the handling of the device. The worker also must have read and understood the safety chapter of this manual and confirms this by signature.
- The necessary personal protection equipment is to be provided by the owner.
- The working instructions are to be permanently kept at the place of use of the device. They are to be at the operator's disposal at any time and without effort.
- Every time the device changes hands or is being rent to third persons, the working instructions are to be sent along with and their importance is to be emphasized.
- The realization of the safety rules is to be checked periodically.

### 2.3. Instructions by the owner

All persons who are to work with the device are obliged before working:

- To take care of the basic safety and accident protection rules.

## 2.4. Instructions of the stuff

- Only skilled and instructed staff is allowed to work with the device.
- The responsibilities of the staff are to be clearly defined regarding transport, mounting and dismounting, starting, setting up, operation, maintenance and inspection, repair and disassembly.

## 2.5. Bauliche Veränderungen an der Maschine

- Ohne Genehmigung des Herstellers dürfen keine Veränderungen, An- oder Umbauten an der Maschine vorgenommen werden.
- Maschinenteile in nicht einwandfreiem Zustand sind sofort auszutauschen.
- Nur original WIDOS Ersatz- und Verschleißteile verwenden.

## 2.6. Cleaning of the device

Pull off absolutely the main plug before cleaning or maintenance work !

The used materials and products are to be treated and disposed with proper care.

Do not use cleaners containing solvents to prevent plastic parts from being damaged.

The heating element sockets and spigots are to be clean and, above all, free from material residue.

Therefore clean them with non-fraying paper and special detergent for weld joints.

## 2.7. Dangers during operation

The device WIDOS HM 0090; HM0160 is constructed according to the latest developments in technology and the acknowledged technical safety rules.

However, dangers for the operator or other persons standing nearby may occur. Also damages to the device itself or to other things are possible.

The device is only to be used:

- according to the prescriptions
- in safety technical impeccable status
- in a dry working area

Disturbances which may affect the safety of the device must be cleared immediately.

## 2.8. Danger of burning



Do wear safety gloves in order to protect you from being burned !

The heating element temperature can reach up to 280 °C / 536 °F

- Do not touch the surfaces of the heating element.
- Do not leave the heating element unsupervised.
- Take enough safety distance to inflammable materials.
- Do wear safety gloves.
- Always put the heating element back into the reception box after and before each use.
- Transport the heating element at the handle only.

## 2.9. Gefahren durch die elektrische Energie



Only skilled workers are allowed to work at electrical appliances!  
The electrical equipment of the machine has to be checked regularly.

- Loose connections and damaged cables have to be replaced immediately.
- If works at alive parts are necessary, a second person has to assist who can disconnect the machine from the mains if necessary.
- All electric tools (heating element, planer and aggregate) have to be protected from rain and dropping water (if need be use a welding tent).
- According to VDE 0100, the use on construction sites is only allowed with a power distributor with a FI-safety switch.

## 2.10. Structural modifications on the machine

- No modifications, extensions or reconstructions may be performed on the machine without permission of the manufacturer.
- Machine parts that are not in perfect condition are to be replaced immediately.
- Only use original **WIDOS** spare and wear parts.
- In case of purchase orders please always note the **machine and version number**.

## 2.11. Guarantee and liability

Fundamentally our "general sales and delivery conditions" are in force.

They are at the buyer's disposal latest before making the contract.

Guarantee and liability demands referring to damages of persons or things are excluded if they are caused by one or several of the following reasons:

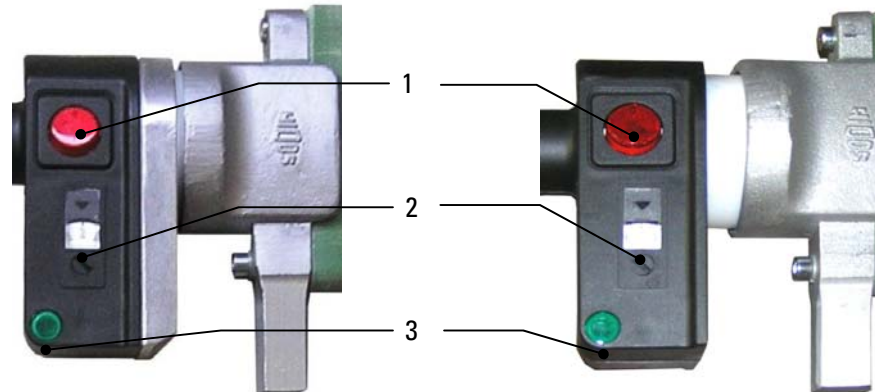
- Not using the machine according to the prescription.
- Unprofessional transport, building-up, starting , operating and maintenance of the machine.
- Running the machine with defective or not properly mounted safety equipment.
- Ignoring the information given in this manual.
- Structural changes on the machine without permission.
- Unsatisfactory checkings of parts of the machine, which are worn out.
- Unprofessionally performed repairs.
- In case of catastrophes and acts of God.



### 3. Elements at the heating element HM0090 / HM0160

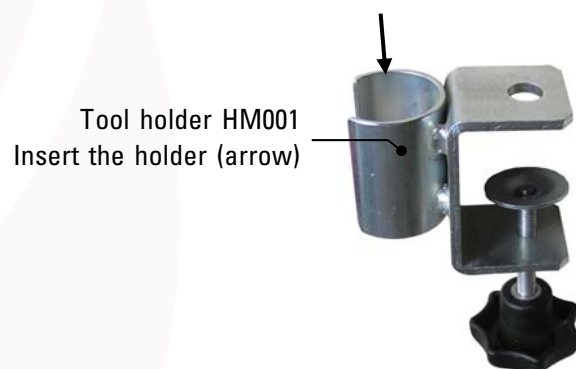
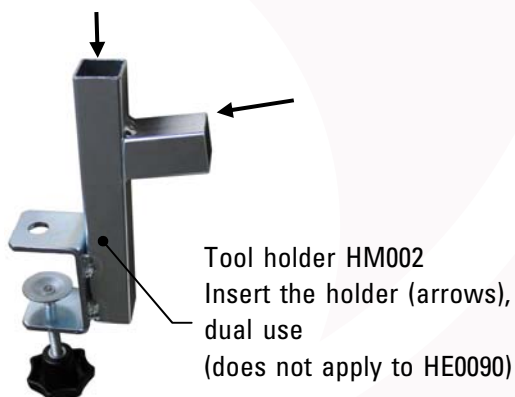
electronic controlled (E)

thermostat-controlled (T)



No.	Denomination	Function
1	Switch on/off with lamp, red	- As soon as the heating tool is switched on, it is heated up.
2	Control dial	- Temperature adjustment for the heating element
3	Control lamp, green	<p>- <b>Upon electronic control:</b></p> <ul style="list-style-type: none"> <li>• <b>On:</b> signalizes that the heating tool is heated up at the moment. The desired temperature has not been reached yet.</li> <li>• <b>Blinking:</b> The heating tool temperature is maintained by a certain pulse-position ratio.</li> <li>• <b>Off:</b> Signalizes that the heating tool is not heated up at the moment or that it cools down.</li> </ul> <p>- <b>Upon thermostatic control:</b></p> <ul style="list-style-type: none"> <li>• <b>On:</b> signalizes that the heating tool is heated up at the moment. The desired temperature has not been reached yet.</li> <li>• <b>Off:</b> Signalizes that the heating tool is not heated up at the moment or that it cools down.</li> </ul>

#### 3.1. Zubehör (optional)



## 4. Starting and operating

The instructions of this chapter are supposed to initiate in the operation of the hand-held heating tool and lead during the appropriate starting of the hand-held heating tool. This includes:

- the safe operation of the hand-held heating tool
- using all the possible options of the hand-held heating tool
- economic operation of the hand-held heating tool.

### 4.1. Starting



The hand-held heating tool may only be operated by initiated and authorized persons. For the qualification, a plastic welding exam can be taken according to DVS and DVGW.

In situations of danger for persons and the hand-held heating tool, the mains plug has to be unplugged immediately.

- Protect the device from wetness and moisture !
- For working at building sites use a current distributor with a FI-security protective switch.
- Take absolutely notice of the safety requirements !
- Environment:
  - Do not weld exposed to direct sunlight.
  - Put up a welding tent if necessary.
- In case of ambient temperatures below 5 °C / 41 °F the following measures have to be taken :
  - If need be, put up a welding tent and heat up the pipe ends.
- Take measures against rain, wind and dust.
- Fix the respective heating socket and spigot by means of the corresponding screw.
- Insert the heating element handle into the base plate supplied in the transport box.
- Plug in the main plug (please take care of the proper voltage).
  - Adjust the temperature at version „T“ (thermostatic) by means of the set screw.
  - Adjust the temperature at version „E“ (electronic) by means of the set screw.
- Heating up of the heating element is indicated by the yellow control light.
- Indication of the desired temperature reached is: Version „T“ the control light goes out, version „E“ the control light will blink.

### 4.2. Handling after use

- Please disconnect the heating element from the power supply system after use.
- For safe storage respectively transport the device should be stored in a transport box.

### 4.3. Preparation of the welding

**On principle, the valid welding regulations (ISO/CEN/DVS...) are to be observed.**

- A timer is to be available in order to register the actual times for heating up and cooling down.
- Chamfer the pipe end to approx. 15°. Handle the connecting area according to the instructions of the pipe and fitting manufacturer.
- Mark the depth of input on the pipe end.
- Clean carefully the inside of the fitting with special detergent for weld joints and a non-fraying paper.
- Take care of the atmospheric conditions.

### 4.4. Welding process

- There are two different welding procedures:
  - Use a pipe which is chamfered but not peeled.
  - Use a pipe which is peeled to a certain length and chamfered.
- Place and fix the pipe and the fitting quickly and axially up to the depth mark on the heating socket and spigot mounted on the heating element.
- Keep the parts fixed during heating up. After heating up pull off the pipe and the fitting abruptly and join immediately the parts without distortion up to the depth mark.
- Hold the joined parts fixed as long as they are cooling down.
- The welding joint has not to be stressed before the end of the cooling down period.
- After each welding process the heating sockets and spigots should be cleaned with non-fraying paper and if necessary with special detergent for weld joints.

## 5. Welding logs and tables

Standard values for heating element socket welding of pipeline components at an ambient temperature of 20 °C / 68 °F and at a moderate air flow.

Welding temperature for all procedures: 250 °C - 270 °C / 482 °F – 518 °F.

### 5.1. Table for PP

Pipe outside diameter [mm]	Heat-up		Change-over (max. time) [s]	Cool down	
	SDR 11, SDR7,4 SDR6 [s]	SDR 17,6 SDR17 [s]		clamped [s]	total [min]
16	5	*)	4	6	2
20	5	*)	4	6	2
25	7	*)	4	10	2
32	8	*)	6	10	4
40	12	*)	6	20	4
50	18	*)	6	20	4
63	24	10	8	30	6
75	30	15	8	30	6
90	40	22	8	40	6
110	50	30	10	50	8
125	60	35	10	60	8
160**)	80	40	10	70	8

### 5.2. Table for PVDF

Pipe outside diameter [mm]	Min. pipe wall thickness - [mm]	Heat-up [s]	Change-over (max. time) [s]	Cool down	
				clamped [s]	total [min]
16	1,5	4	4	6	2
20	1,9	6	4	6	2
25	1,9	8	4	6	2
32	2,4	10	4	12	4
40	2,4	12	4	12	4
50	3	18	4	12	4
63	3	20	6	18	6
75	3	22	6	18	6
90	3	25	6	18	6
110	3	30	6	24	8
125**)	4	35	6	24	8
160**)	4	40	6	24	8

### 5.3. Table for PEHD

Pipe outside diameter [mm]	Heat-up		Change-over (max. time) [s]	Cool down	
	SDR 11, SDR 7,4 SDR 6 [s]	SDR 17,6 SDR 17 [s]		clamped [s]	total [min]
16	5	*)	4	6	2
20	5	*)	4	6	2
25	7	*)	4	10	2
32	8	*)	6	10	4
40	12	*)	6	20	4
50	18	*)	6	20	4
63	24	*)	8	30	6
75	30	18	8	30	6
90	40	26	8	40	6
110	50	36	10	50	8
125	60	46	10	60	8
160**)	80	56	10	70	8

### 5.4. Table for PB (Polybuten)

Pipe outside diameter [mm]	Min. pipe wall thickness [mm]	Insertion depth [mm]	Heat-up [s]	Holding (under pressure) [s]	Cool down [min]
20**)	2,0	15	6	15	2
25**)	2,3	18	6	15	2
32**)	3,0	20	10	20	4
40**)	3,7	22	14	20	4
50**)	4,6	25	18	30	4
63**)	5,8	28	22	30	6
75**)	6,8	31	26	60	6
90**)	8,2	36	30	75	6
110**)	10,0	42	35	90	6
125**)	11,4	46	40	104	7

\*) Due to wall thickness which is too small, this welding method is not recommended.

\*\*\*) These fields contain merely interpolated values which are not verified by a valid standard and for which the WIDOS GmbH does not assume any warranty.

Apart from that, the standard values for welding of the plastic pipe or fitting manufacturer are valid.

5.5. Welding log

Report for heated socket welding of tubular components									
Employer	Contracting company		Welding machine:		Material		Sheet of		
	Name of the welder	Identity no.	Make:	Type:	Machine no.:	Year of manufacture:	Weather conditions	Protective measures	of
Order title	Name a. company of the welding inspector		Cool down 2)		Ambient temperature	Code no.	Remarks		
Order no.	Name a. company of the welding inspector		cooling time (fixing) s	cooling time (total) min	°C	weather	protective measures		
Weld no.	Date	Pipe size Ø d x s mm	Heat-up time 2) s	Change-over time 2) s					
			Measured temperature at socket and spigot °C						
			Data of fitting 1)						
			A	B	charge no.				
Signature of welder:									
Date and signature of the welder inspector:									
1) These data may be entered by agreement. 2) The measured values must be entered.									
A = ref. of manufacturer		1 = socket		2 = angle		3 = t-piece		4 = reduction	
B = fitting code number		5 = cap		6 = adapter		7 = instruments			

## 6. Spare parts lists

### 6.1. Spare parts list HM0090



You can access our website and select our spare parts lists via the qr code shown here. Select "socket welding device HM0090"

### 6.2. Spare parts list HM0160



You can access our website and select our spare parts lists via the qr code shown here. Select "socket welding device HM0160"

## 7. Declaration of conformity

Issuing the declaration of conformity with regard to complying with the basic requirements and assembling the technical documentation is in the sole responsibility of:	
Manufacturer / Installation company:	WIDOS Wilhelm Dommer Söhne GmbH
Address:	WIDOS GmbH Einsteinstr. 5 D-71254 Ditzingen

Subject of the present declaration is the following device:	
Product name:	<b>socket welding device</b>
Model name:	WIDOS HM0090; WIDOS HM0160

For the stated device we herewith declare that it complies with the <b>basic requirements</b> stipulated in the following designated harmonizing regulations:
<b>in the sense of the EC guideline EC-Machinery Directive 2006/42/EC</b>

Statement of the relevant <b>harmonizing standards</b> referred to, or indication of the specifications that the conformity is declared for:	
Standard	Title
DIN EN ISO 12100	Safety of machines, basic concepts, general layout guidelines
DIN EN 60204.1	Electric equipment of industrial machines
DIN EN 60555, DIN EN 50082, DIN EN 55014	Electro-magnetic resistance

Entitled to compile the technical documentation:	
Name:	WIDOS Wilhelm Dommer Söhne GmbH
Address:	Einsteinstr. 5 D-71254 Ditzingen

Signed on behalf of the company:	
Name, first name:	Dommer, Martin
Function:	Technical director

Heimerdingen, 07.06.2019

Place / Date



Legally binding signature

This declaration is to certify the compliance with the mentioned harmonizing regulations, however does not include any assurance of properties.