

# Roofing



We know how.





Dear Leister customers

When working on the roof, you always need to be able to completely rely on your devices. This is our firm belief. And this is why you should quite rightly have high expectations of a Leister automatic roof welding machine: We guarantee to provide you with maximum device reliability and the best all-round service.

Our welding devices are highly reliable even in difficult conditions with undervoltage. A high level of flexibility is also required when it comes to automatic welders. Our devices are used in numerous roof applications as well as in situations where space is at a premium. With their sophisticated ergonomics, the easy-to-handle automatic roof welding machines are keeping abreast of the trend, which is moving away from manual welding and in the direction of automatic welding. Using the UNIROOF, you can carry out welding both in and on the parapet. The economic efficiency is also given to a high degree with automatic welding.

We always strive to tailor the devices to meet our customers' needs in the best way possible. Our development department is continually carrying out research into new technologies so that we can offer you the highest-possible quality. This is why you can count on Leister to provide devices that use state-of-the-art technology. Even under the harshest conditions, you can therefore rely on our automatic welders. This is what we have stood for for more than 70 years.

In this brochure, you will find numerous application options, as well as tips and tricks. These will help you to ensure a leak-free roof, whether you are using bitumen or plastic.

I hope you enjoy reading our brochure!

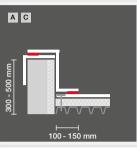
#### **Roland Beeler**

Business Line Plastic Fabrication, Roofing & Flooring (PRF)



# For all roof applications

Whether you're working in or on the parapet, under vaults, or on flat surfaces – you are guaranteed to find the automatic welders you need among our wide range of products. Here, you will gain an overview of various roof applications and find out which automatic welders are suitable for which applications.



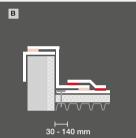
The **UNIROOF 700/300** welds as close as 100 mm to the edge of the parapet or on the parapet without leaving a gap. Just one device for two applications. This flexibility enables a reliable jointing technique.

Detail C enables anti-fall protection to be

applied in a controlled and safe manner.

UNIROOF 700/300

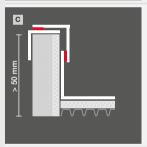
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As the **UNIDRIVE 500** only requires 30 - 40 mm to insert an overlap from right to left, you can weld tirelessly in a safer environment.

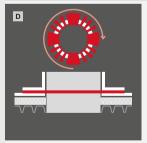
**UNIDRIVE 500** 

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Thanks to the handles of the **UNIDRIVE 500** it allows to weld difficult details ergonomically, cleanly and tightly. Thanks to the rotating nozzle and reversible drive, all welding applications can be carried out. The UNIROOF AT/ST can also be used as an alternative.

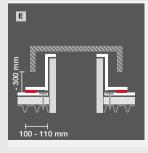
UNIDRIVE 500 UNIROOF 700/300 page: 15 - 17 page: 18 - 20



The **UNIDRIVE 500** can be used flexibly and simplifies circular welding. This semi-automatic device is suitable for detail work and closes the gap between manual and automatic welding.

**UNIDRIVE 500** 

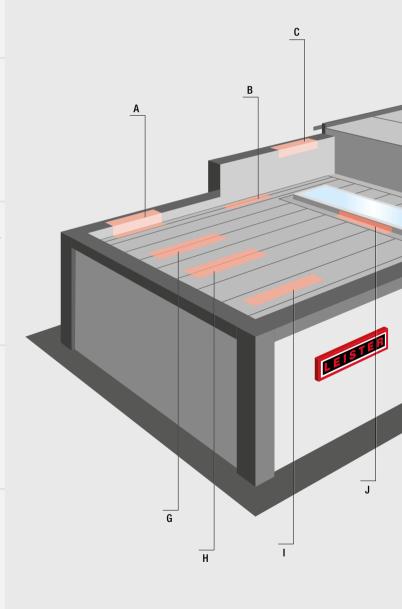
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The **UNIROOF 700/300** enables sealing sheets to be used even on a wide range of details, such as domed skylights, special balustrades, or renovations. This is made possible by its compact design and height, which does not exceed 300 mm.

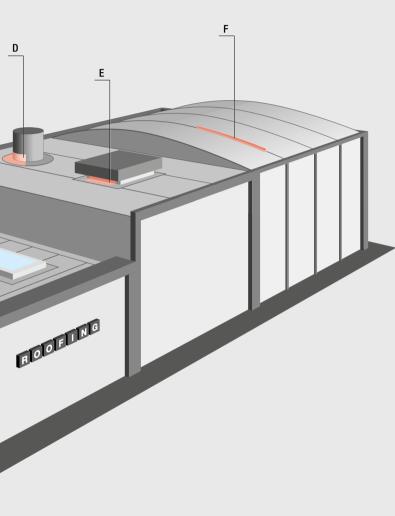
UNIROOF 700/300

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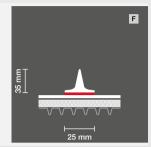






Arduous manual welding is a thing of the past. You can weld safely and ergonomically with the UNIROOF 700/300 155.414 kit for plastic roof profiles. You can set the pressure rollers steplessly according to the width of the profile. At 2 m/min, you can carry out welding extremely efficiently.

UNIROOF 700/300 155.414 kit Page: 20



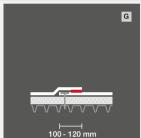
The popular, ergonomic **VARIMAT V2** automatic roof welder welds all TPO and PVC sealing sheets with extra pressure thanks to its patented pressure roller and trailing roller. Its high blowing capacity guarantees high efficiency for all sealing sheets. This is also possible with the UNIROOF 700/300.

UNIROOF 700/300 page: 18 - 20 VARIMAT V2 page: 22/23

Sealing tape is welded over when fastening rails are used. Using the **UNIROOF 700/300**, you will achieve a reliable weld in two sequences. This is

also possible with the VARIMAT V2.

VARIMAT V2



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UNIROOF 700/300 page: 18 - 20

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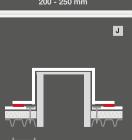
Sealing tape of between 200 and 250 mm is welded over when fastening rails are used. Using the **UNIROOF 700/300** and VARIMAT V2, you will achieve a reliable weld in two sequences.



z.B. 200 - 250 mn

UNIROOF 700/300 page: 18 - 20 VARIMAT V2 page: 22/23

The **VARIMAT V2 mirror kit** enables you to weld as close as 60 mm to the edge. The saves materials and is economical. The mirror-inverted nozzle is also suitable for numerous other applications.



Mirror kit for VARIMAT V2 page: 23





Aldi logistics center 50000m2 TPO Membrane, Switzerland



Exploration Place First, Wichita, USA



Schöni transport Centre, Switzerland



# Roofing

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## **Hot Air Tools for Roofing**

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Detail work on the rooflight dome.



Flameless welding of modified bitumen with the BITUMAT. B2.

Overview
<b>Roofing Welders</b>









		1	VARIMAT V2			
Materials	Ther	Thermoplastic Single-Ply membranes				
Type of welding machine	UNIDRIVE 500	UNIROOF 700/300	VARIMAT V2 / VARIMAT S	BITUMAT B2		
Main application	Parapets, tight spaces, pitched roofs	Parapets, edges Residential construction surfaces under 500 m2	Welding close to edges Industrial surfaces over 500 m2	First bitumen layer		
Roof construction						
Flat roof	<b>***</b>	<b>///</b>	<b>///</b>	<b>///</b>		
Sloped roof	<b>///</b>	<b>√</b> √	✓	✓		
Basic weld seams	✓	<b>√</b> √	<b>///</b>	<b>///</b>		
Detail work	<b>///</b>	<b>///</b>	✓	✓		
Thickness of sealing sheets	up to 1.8 mm	up to 1.8 mm	up to 2 mm / 1.8 mm	up to 6 mm		
Special features	Welding on both sides with rotating nozzle	Ideal for roof edge welding	Double welding performance against competitors	Flameless welding		
Parapet spacing in mm	45	100	110	200		
Generator operation	4KW	At least 6 kW to supply a hot air hand tool	At least 10 kW to supply a hot air hand tool			
Electronics						
Regulated for drive/heater/blower (closed-loop system)	UNIDRIVE 500	UNIROOF 700	VARIMAT V2			
Speed m/min.						
Drive	0.7 - 4.5	1 – 10	0.7 – 12	0.8 - 12		
Welding speed (depending on material)	1 – 2.5	2-3	4 – 8	3 – 6		
Recommended welding start parameter depending type of membrane (tested by room condition 20°C)	PVC membrane: 2.0 m/min, 480 – 520°C, air volume 100% TPO/FPO membrane: 2.0 m/min, 420 – 470°C, air volume 100%	UNIROOF 700 PVC: 2.5 m/min, 550°C, air volume 100% TPO: 3.0 m/min, 480°C, air volume 100% UNIROOF 300 PVC: 2.0 m/min, 550°C, air volume 100% TPO: 2.2 m/min, 480°C, with the second seco	VARIMAT V 2 PVC: 4.0 m/min, 550°C, air volume 85% TPO: 5.0 m/min., 500°C, air volume 100% VARIMAT S: PVC: Temperature level 8.5–9 (550°C) TPO: No trailing roller, can only	nozzle till 100 mm Modified Bitumen: 5.0 m/min, 650°C, air volume 100%		
Weight ke	4.5	air volume 100%	be used to limited degree 35 / 28	40		
Weight kg	4.5 Brushless	Brushless / Brush motor	Brushless / Brush motor	Brush motor		
Blower technology						
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 $\checkmark\checkmark\checkmark$  = Highly suitable,  $\checkmark\checkmark$  = Suitable,  $\checkmark$  = Limited suitability

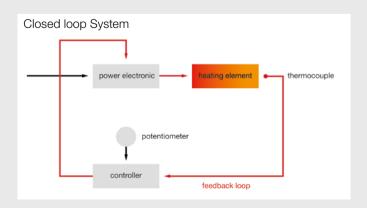


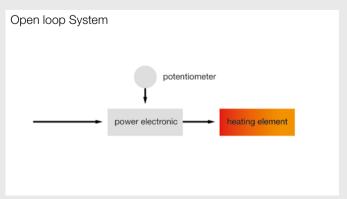
Manual welding with plastic sealing sheets.

Overview Hot-air hand tools				
Тур	TRIAC ST	TRIAC AT	ELECTRON ST	HOT JET S
Area of application	Joining of thermoplastic sealing sheets with high welding power	Joining of thermoplastic sealing sheets with high welding power	Joining of modified bitumen	Joining of thermoplastic sealing sheets in tight spaces. For detail work on roof gutters and parapets, for example
Starting welding parameters manual weld	PVC: From 360 C TPO: From 295 C	PVC: From 360 C TPO: From 295 C	Modified bitumen: From 550 C	PVC: From 360 C TPO: From 295 C with 20 mm nozzle
Sealing sheets	Suitable for PVC/TPO sealing sheets with wide welding window	Suitable for PVC sealing sheets with wide welding window and TPO with narrow welding window	Modified bitumen	Suitable for PVC/TPO sealing sheets with narrow welding window
Electronic	Open loop	Close loop	Open loop	Open loop
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# Closed-loop system

The closed-loop technology means that the parameters are kept constant at all times, even in the event of voltage fluctuations, enabling reliable welding in the building site environment.







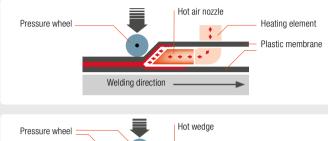
# Leister. We know how. - Tips and tricks

Leister Technologies AG offers high-quality welding devices for demanding tasks – in any industry where plastic is processed.

Here you can find a few tips and tricks that will help you ensure that your roof is leak-tight, whether the work involves bitumen or plastic.

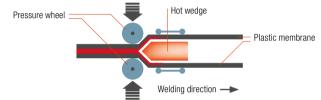
#### Know-how

## **Welding Methods**



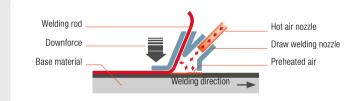
#### Hot-air welding Hand tools, automatic welders, stationary welding machines

In hot gas welding, the thermal energy is controlled. Heated air is fed into the workpiece and the required amount of pressure is exerted onto the wheels.



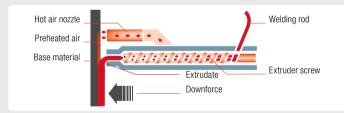
# Hot-wedge welding Wedge welders

The process where the wedge is heated directly by heating cartridges. The generated heat is transferred directly onto the workpiece. This method also is suitable for thicker materials.



# Draw Welding (Speed Welding) Hand tools

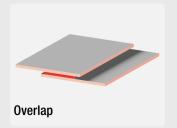
This welding method requires the use of a speed welding nozzle. Preheat the surfaces to the apropriate temperature. The surfaces are plasticized by hot air and joined under consistent downward pressure.



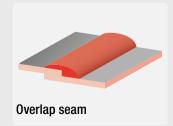
# Extrusion Welding Extrusion Welders (FUSION & WELDPLAST)

In extrusion welding, the substrate is preheated with hot air and connected by adding the extrudate. The welding rod is fed into the heater barrel and the plast is processed by the extruder screw.

# Weld Types / Weld Geometries









Air partitioning keeps the hot air in the weld seam to ensure reliable welding.

#### Know-how

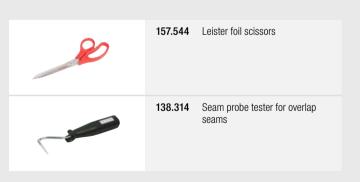
# Basic automatic welding machine equipment

132.429	Welding plates for optimum welding start and end		A STATE OF THE PARTY OF THE PAR	116.798 151.847	Brass brush UNIROOF AT/ST and VARIMAT V2 Brass brush UNIDRIVE 500
151.382	Kehlfix	•		137.855 138.902 138.539	Leister cutter  Hooked blade for LEISTER-cutter (10 dispenser with 10 pcs)  Straight-edge blade for LEISTER-cutter (10 dispenser with 10 pcs)
106.972	Brass pressure roller with ball bearings				22.2. (12.2.2.2.30) (11.1.1.0.2.2.2.2)

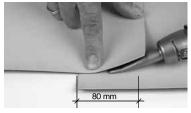
Caution! Always carry out test welds before starting lap welds. In the morning and in the afternoon

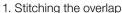
# Basic hot-air hand tool equipment

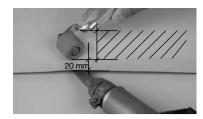












2. Pre-welding



3. Final welding

#### Know-how

## Correct hot-air welding

- Rule no. 1: weld like with like
- In all welding processes, ensure the correct temperature/ pressure/speed settings are made so that seams can be created without problems. The joining surfaces must be dry and free from contamination.
- Always check the hot-air welding device (for blocked nozzles, for defective heating elements, and in case the filter requires cleaning)
- · Carry out test welding and check seams for peeling
- In the case of homogeneous sealing sheets, elastic bands may be used as welding aids.

#### Avoiding air inclusions

In the case of hard, uneven substrates (PIR/PUR with aluminum cladding) or mineral fiber insulation in combination with PVC sealing sheets, it is important to avoid air inclusions. You can prevent them by using a softer pressure roller together with a rake nozzle kit for the VARIMAT V2 automatic welding machine (see page 13).

#### Manual welding process

The hot-air nozzle should be cleaned periodically to prevent contamination getting into the weld seam and to ensure that welding is able to take place at full power. The distance between the pressure roller and the nozzle opening should be between 20 and 30 mm to ensure that the weld seam is joined as efficiently as possible. The pressure roller must be guided so that it is parallel to the nozzle. This will ensure that the welding process yields the best possible results (see images above).

# Welding under building site conditions Substrate properties

- Solid substrate with fine surface, no elevation (clean laying)
- The building ground should be free from pointed objects and stones.

### Environmental conditions/Weather conditions/Rain

If it is raining, welding must not be carried out without special protective equipment.

#### Air temperature

Welding must be suspended at temperatures below +5°C in or-

der to prevent the roof sheeting being exposed to an excessively high thermal load (in accordance with DVS 2225-4).

#### Humidity

In some cases, excessively high humidity can cause condensation to form on the welding surface, which has a negative effect on the seam strength.

#### Wind

If there is strong wind, the required welding temperature may not be reached in some cases. This can be counteracted by raising the welding temperature by 20 to 30°C or reducing the speed by 20 to 40 cm/min. If the wind is excessively strong, the welding area should be shielded against wind or welding should be suspended.

#### Sun

Exposure to the sun will cause materials to heat up significantly, particularly black sealing sheets. The sheet will experience increased thermal expansion if this happens. This causes wrinkles, which makes the welding process more difficult and leads to an inadmissibly high level of tension in the seam area when the material cools.

#### Maintaining the hand tool

- The air inlet and filter must be cleaned periodically.
- The heating element should be cleaned periodically.





This will ensure that the right level of welding power is reached.

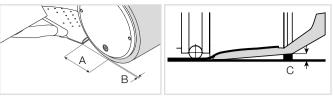
#### Defining the generator power

The generators must have the correct specifications in order to ensure safe operation:

- VARIMAT V2: Min. 10 KW to ensure a reserve for hand tools
- UNIROOF 700/300: Min. 6 KW

# Adjusting nozzles for UNIROOF 700/300 and VARIMAT V2/S

- Distance between middle of spherical roller to tip of nozzle:
   42 mm
- Position standard nozzle at a slight angle; approx. 1 mm (sketch C)
- Grip nozzle must lie flat



A = 42 mm +/-2B = 1-2 mm

C = 1 mm

#### Know-how

#### What to note in the case of air inclusions.

# Rake nozzle kit to solve the problems caused by bubbles forming on hard surfaces.

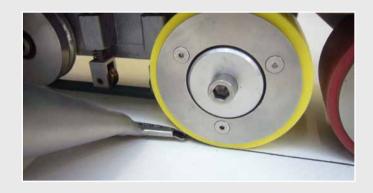
Growing heat insulation requirements have caused roof structures to undergo changes in recent years. Additionally, hard PIR/PUR or thicker mineral wool insulating materials with a higher level of compressive strength are now installed on the upper side. During the welding process, these insulating materials demonstrate virtually no temporary elastic behavior. These properties may cause air inclusions to arise in the weld seam of mechanically fastened PVC roof sealing sheets under certain climatic or local conditions. The new rake nozzle kit ensures that all leak-tightness and aesthetic requirements are met even in roof structures of this nature.

#### Rake nozzle:

Continuous and constant weld seam width. To prevent air inclusions, the lower PVC roof sealing sheet is pressed down using the rake nozzle.

#### Pressure roller:

The soft silicone pressure roller enables the pressure to be distributed as effectively as possible over uneven and hard substrates.



# Use the right extension cables!

## Voltage drop due to cable length

#### Important facts

- The cable should be copper, with as large a cross-section as possible
- The cable should be as short as possible
- The following rules of thumb apply:
   Automatic welding machines: maximum 50 m
   with 2.5 mm² cable, e.g., VARIMAT V2 4.6 KW
   230 V/over 50 m 4.0 mm² Manual welding:
   maximum 50 m with 1.5 mm² cable, e.g., TRIAC
   AT/ST 1.6 KW 230 V
- Plug for 20 amps and a secure connection
- A generator should have a capacity of 10 KW
- A stable electrical environment is required
- The fuse should have 20 amps for 230 volts and 16 amps for 400 volts

	Varimat V2 230 V / 4600 W			Varima	at V2 400 V / 5	700 W
Copper cable	1.0 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	1.0 mm <sup>2</sup>	1.5 mm²	2.5 mm <sup>2</sup>
50 m	200 V (-13 %)	209 V (-9%)	217 V ( -6%)	377 V (-6%)	384 V (-4%)	390 V (-2.5%)
100 m	177 V (-23 %)	192 V (-17%)	205 V (-11%)	256 V (-11%)	370 V (-8%)	381 V ( -5%)
150 m	159 V (-31 %)	177 V (-23%)	194 V (-16%)	338 V (-16%)	356 V (-11%)	372 V ( -7%)
200 m	144 V (-37 %)	164 V (-28%)	184 V (-20%)	321 V (-20%)	344 V (-14%)	363 V ( -9%)
250 m	132 V (-43 %)	154 V (-33%)	176 V (-24%)	306 V (-23%)	332 V (-17%)	355 V ( -11%)
300 m	121 V (-47 %)	144 V (-37%)	168 V (-27%)	292 (-27%)	321 V (-20%)	347 V ( -13%)
350 m	112 V (-51 %)	136 V (-41%)	160 V (-30%)	280 (-30%)	311 V (-22%)	340 V ( -15%)
400 m	105 V (-54 %)	128 V (-44%)	154 V (-33%)	268 (-33%)	301 V (-25%)	332 V ( -17%)
450 m	98 V (-57 %)	121 V (-47%)	148 V (-36%)	258 (-36%)	292 V (-27%)	326 V (-19%)
500 m	92 V (-60 %)	115 V (-50%)	142 V (-38%)	248 (-38%)	284 V (-29%)	319 V ( -20%)
550 m	87 V (-62 %)	110 V (-52%)	137 V (-41%)	239 (-40%)	276 V (-31%)	312 V ( -22%)



#### Know-how

# Comparison: bitumen roof vs. plastic roof

STRUCTURE	WARM ROOF, BITUMINOUS, no slope	WARM ROOF, PLASTIC, sealing sheets without slope
	1 Extensive roof greening (can be walked on to a limited extent) 100 mm	Extensive roof greening (can be walked on to a limited extent) 100 mm
	2 Drain protection mat 20-30 mm 20 mm	Drain protection mat 20-30 mm 20 mm
	Bitumen sheets, 2-layer, EGV 3.5/EP5WF (root-resistant) 10 mm	Plastic sealing sheet 2 mm
	4 PU ALU 240 mm U value 0.10 (W/(m2 x K)) 240 mm	PU ALU 240 mm U value 0.10 (W/(m2 x K)) 240 mm
	5 Vapor barrier EVA 35 5 mm	Vapor barrier EVA 35 5 mm
	6 Concrete ceiling without slope 240 mm	Concrete ceiling without slope 240 mm
EVALUATION		
Safety	- Black sealing sheets cannot be identified	Plastic sealing sheets are marked and can be identified even after 50 years
	<ul> <li>Sealing installed using flame and gas (working hygiene, fire hazard)</li> </ul>	+ Installed using automatic welding machine (homogeneous welding)
	+ Layer thickness of approx. 9 mm (mechanical damage)	<ul> <li>Sealing 1.8 mm, relatively thin but higher dielectric strength</li> </ul>
	<ul> <li>Bitumen is not generally root-resistant (only if herbicides are used, and these are washed out over time and enter groundwater).</li> </ul>	+ Plastic sealing sheets are root-resistant throughout their entire service life; no need for critical additives, etc.
		+ Clean installation without dirt
	+ Service life approx. 40 years	+ Service life 55 to more than 100 years
Ecology	Dismantling, disposal in municipal solid waste incineration plant	+ TPO sealing sheets sorted according to category can be recycled
	Significant impact on the environment (compare environmental impact points calculation enclosure)	<ul> <li>TPO sheets have a low impact on the environment and have the highest recommendation according to ECO (112 million environmental impact points; less than bitumen at 3,650 m2)</li> </ul>
	Root resistance only incorporated with the use of herbicides	+ Root-resistant without herbicides
	- 6x higher fire load, weight/content by mass approx. 12 kg/m2	+ Weight/content by mass approx. 2 kg/m2
	- Mass with $5,545 \text{ m2} = \text{approx. } 66 \text{ to}$	+ Mass with 5,545 m2 = approx. 11 to; i.e., a total of 55 to less weight with the plastic sealing sheet!
Logistics	<ul> <li>5,545 m2: 60 pallets more of material = more crane trains required</li> </ul>	+ 5,545 m2: total area with 10 pallets
Costs	+ Cost-neutral	+ Cost-neutral/the larger the industrial roof, the less expensive
Warranty	+ 10-year system warranty	+ 10 to 15-year full material warranty (for the entire system)
Installation performance	<ul> <li>More time required due to 2-layer installation, 10x1 m/8x1 m</li> </ul>	+ Length of sealing sheets can be adjusted; faster installation, less impact on sheets = safer

Summary: The plastic sealing sheet is the better option, depending on the design of the industrial roof and the permeation properties. As a result, plastic sealing sheets are set to gain a larger share of the market. Leister has the right solution for all sealing sheets.



# Reliable and cost-effective - everywhere - UNIDRIVE 500

The compact UNIDRIVE 500 semi-automatic hot-air welder impresses with its many advantages. Guided by two ergonomic handles, you can achieve the ideal pressure to ensure high-quality welding results. Change welding direction with ease via a rotating nozzle and reversible drive. The UNIDRIVE 500 is ideal for all roof applications, even in tight spaces, and welds two to three times faster than manual welding. Lap welding with the UNIDRIVE 500 – reliable and cost-effective – everywhere.

#### Semi-automatic hot-air welder







Whether on or at the roof parapet or welding domed skylights, connections, or small terraces – the UNIDRIVE 500 shows its worth when space is tight.

#### Semi-automatic hot-air welder

## **UNIDRIVE 500**



- Safe: Constant parameters and reliable quality even with undervoltage
- Fast: Up to three times faster than manual welding
- Customized: Reversible drive allows for welding in either direction
- **Practical**: Compact and lightweight semi-automatic hot-air welder: 4.5 kg, 30 cm high
- Economical: Maintenance-free, brushless motors

Technical data		UNIDRIVE 500 100 V	UNIDRIVE 500 100 – 120 V	UNIDRIVE 500 220 – 240 V		
Voltage	V~	100	120	230		
Power	W	1500	1800	2300		
Temperature	°C		100 - 560			
Air volume	%	45 – 100				
Speed	m/min	0.7 – 4.5				
Emission	L <sub>pA</sub> (dB)	70 (K = 3 dB)				
Size (L $\times$ H $\times$ B)	mm	2	$297 \times 173 \times 27$	5		
Weight	kg	4.5				
Conformity mark			C€			
Protection class I						
Article No.						

#### Article No.:

163.144 UNIDRIVE 500, 40 mm, 220 – 240 V/2300 W, Euro plug, Silicone rollers 163.146 UNIDRIVE 500, 40 mm, 220 – 240 V/2300 W, CEE 3 pol. blue, Silicone rollers 163.148 UNIDRIVE 500, 40 mm, 100 – 120 V/1800 W, UK plug, Silicone rollers 163.149 UNIDRIVE 500, 40 mm, 100 V/1500 W, JP plug, Silicone rollers 163.150 UNIDRIVE 500, 30 mm, 220 – 240 V/2300 W, EU plug, Silicone rollers 163.151 UNIDRIVE 500, 40 mm, 220 – 240 V/2300 W, CEE 3 pol. blue, Steel rollers 163.152 UNIDRIVE 500, 15 mm, 220 – 240 V/2300 W, CEE 3 pol. blue, Steel rollers 163.152 UNIDRIVE 500, 15 mm, 220 – 240 V/2300 W, CEE 3 pol. blue, Steel rollers 100 with purchase: Welding machine, device case, hex key, quick guide

## **Accessories UNIDRIVE 500**

lll	164.586 164.576 164.403	Overlap welding nozzle 15 mm 30 mm 40 mm
0	163.930	Pressure roller, steel 15 mm
•	163.357	Pressure roller steel 40 mm
100	162.551	Support wheel, silicone
	161.156	Silicone rubber roller 40 mm
	159.911	Wheel for silicon rubber roller 40 mm
- State Market	151.847	Brass brush
	164.605 156.531	Storage case UNIDRIVE 500 Carrying strap for Leister case
	145.582 165.176 165.179	Heating elements 230 V / 2200 W Heating elements 120 V / 2100 W Heating elements 100 V / 1600 W
	169.780	Support roll
	170.120	Inseam scraping nozzle, 40 mm



# **UNIROOF 700**

Thanks to LQS, Monitored Welding Assistant and Leister's standard nozzle, the UNIROOF 700 automatic roof welding machine is well-suited for welding flat roofs and sets a new standard in the roof industry.



#### Hot-air welder

2

#### **UNIROOF 700**



Quality assurance through LQS
The LQS Roofing data report can be
used for a small fee via the myLeister
app. Thus, the welding parameters
(speed, air volume and temperature)
are under control and documented.



### **Monitored Welding**

The Monitored Welding Assistant on the UNIROOF 700 monitors the welding process and warns users if they leave the welding area.



Welding recipes in the myLeister app The myLeister app provides an overview of saved welding recipes. Prefabricated welding profiles for TPO, PVC, EVA, PIB are already entered.

Technical Data		
Voltage	V~	100 – 230
Power	W	1500 – 3680
Temperature	°C	100-620
Frequency	Hz	50/60
Weight	kg	17
Speed	m/min	1.0 –10.0
Air volume 20°C	I/min	45 – 100
Size $L \times W \times H$	mm	$475 \times 244 \times 260$
Conformity marking		C€
Protection class I		

#### Article No.:

 $165.834 \;\; \text{UNIROOF} \, 700, \, 230 \, \text{V} / 3680 \, \text{W}, \, 40 \, \text{mm}, \, \text{EU} \, \text{plug}$ 

165.835 UNIROOF 700, 120 V / 1800 W, 40 mm, US plug

165.836 UNIROOF 700, 230 V / 3680 W, 40 mm, without plug

165.837 UNIROOF 700, 100 V / 1500 W, 40 mm, JP plug

169.235 UNIROOF 700, 230 V / 3680 W, 40 mm, Industrial plug

169.236 UNIROOF 700, 230 V / 3680 W, 40 mm, KR plug

169.237 UNIROOF 700, 120 V / 1800 W, 40 mm, UK plug

 $170.210 \quad \text{UNIROOF} \ 700, \ 230 \, \text{V} / 3680 \, \text{W}, \ 80 \, \text{mm}, \ \text{EU} \ \text{plug}$ 

Included with purchase: Welding plate, Hand brush, stainless steel, Allen wrench 4 mm



# **UNIROOF 300**

The compact UNIROOF 300 automatic welding machine is ideally suited for welding medium to large, flat roofs and is ideal as an entry-level machine due to its simple operation.



#### Hot-air welder

3

## **UNIROOF 300**



#### Regulated welding parameters With closed-loop technology, important welding parameters like speed, temperature and air volume a

speed, temperature and air volume are controlled on the UNIROOF 300 and are easy to set, thanks to the digital display.



# Standard nozzle for optimum weld seam width

Thanks to its 40 mm wide standard nozzle, Leister's UNIROOF 300 achieves a homogeneous weld seam up to 40 mm wide. Inserting the nozzle into the overlap is easy.



#### Handling made easy

The UNIROOF 300 from Leister is easy to roll and easy to carry thanks to its adjustable guide wheels and practical carrying handle.

Technical Data		
Voltage	V~	100-230
Power	W	1500 – 3450
Temperature	°C	100-600
Frequency	Hz	50/60
Weight	kg	17
Speed	m/min	1.0-10.0
Air volume 20°C	I/min	45-100
Size $L \times W \times H$	mm	$475 \times 244 \times 260$
Conformity marking		C€
Protection class I		

#### Article No.:

 $168.634 \ \ UNIROOF\ 300,\ 230\ V/3450\ W,\ 40\ mm,\ EU\ plug\\ 168.635 \ \ UNIROOF\ 300,\ 120\ V/1800\ W,\ 40\ mm,\ US\ plug$ 

168.636 UNIROOF 300, 100 V / 1500 W, 40 mm, JP plug

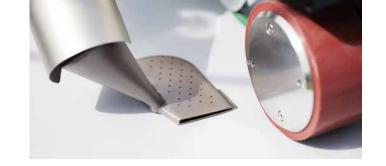
168.637 UNIROOF 300, 230 V/3450 W, 40 mm, Industrial plug 168.638 UNIROOF 300, 230 V/3450 W, 30 mm, EU plug

168.639 UNIROOF 300, 230 V/3450 W, 40 mm, without plug

Included with purchase: Welding plate, Hand brush, stainless steel, Allen wrench 4 mm

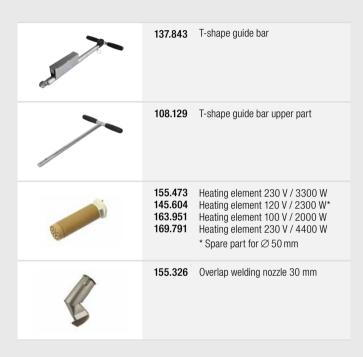






# Accessories UNIROOF 700/300

	173.295	Roof structure profile kit
Sola .	173.654	Bitumen kit 80mm, UNIROOF 300/700
	170.119	Inseam scraping nozzle, 40mm, UNIROOF
1	152.742	Additional weight, front 1.5 kg
	152.741	Additional weight, lateral 2.0 kg
	167.345	Nozzle adjustment gauge UNIROOF 700/300
	132.429	Welding plate
AND THE PROPERTY OF THE PARTY O	138.817	Steelbrush to clean nozzle
6	154.522	Transportation axle 300 mm
6	152.706	Transportation axle 220 mm for radius welding
turn.	154.827	Storage case UNIROOF
	155.577	Locking plate for additional weights





# VARIMAT V2: Fast and dependable.

Using the new VARIMAT V2, polymer roofing membranes can be welded more rapidly resulting in lower cost. Users appreciate its streamlined ergonomics and its ease of use. The clearly laid out operating unit's "e-Drive" allows for the control of all relevant weld parameters.



Highly reliable in application even at undervoltage.

#### Hot-air welder

### **VARIMAT V2**



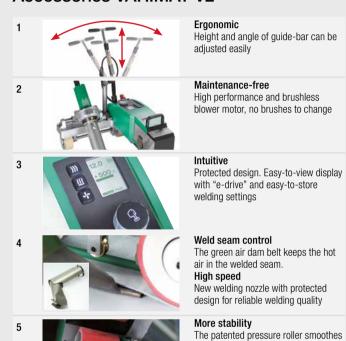
- Process reliability: Machine cuts out if undervoltage is too high
- Patented spherical roller compensates unevenness
- Guide bar for ergonomic handling
- Maintenance free blower means lower service costs
- User-friendly display with "e-Drive" (press and turn control) to recall preset and saved welding settings
- Constant drive with regulated electronics

Voltage         V~         230 / 400           Power         W         3680 / 5700           Temperature         °C         100 – 600           Speed         m/min         0.7 – 12           Air flow range         %         50 – 100           Width of welding nozzle         mm         40           Size (L × W × H)         mm         640 × 430 × 330           Weight         kg         35	Technical data		
Temperature         °C         100 – 600           Speed         m/min         0.7 – 12           Air flow range         %         50 – 100           Width of welding nozzle         mm         40           Size (L × W × H)         mm         640 × 430 × 330	Voltage	V~	230 / 400
Speed         m/min         0.7 – 12           Air flow range         %         50 – 100           Width of welding nozzle         mm         40           Size (L × W × H)         mm         640 × 430 × 330	Power	W	3680 / 5700
Air flow range $\%$ $50-100$ Width of welding nozzle mm $40$ Size $(L \times W \times H)$ mm $640 \times 430 \times 330$	Temperature	°C	100 – 600
Width of welding nozzle mm 40 Size $(L \times W \times H)$ mm $640 \times 430 \times 330$	Speed	m/min	0.7 – 12
Size $(L \times W \times H)$ mm $640 \times 430 \times 330$	Air flow range	%	50 – 100
	Width of welding nozzle	mm	40
Weight kg 35	Size $(L \times W \times H)$	mm	$640\times430\times330$
Weight kg 55	Weight	kg	35
Conformity mark C €	Conformity mark		C€
Protection class I	Protection class I		<b>(1)</b>

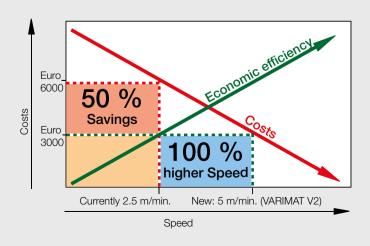
#### Article No ·

AI LICIE IV	hu
138.108	VARIMAT V2, 230 V / 3680 W, Euro plug, storage case
137.821	VARIMAT V2, 400 V / 5700 W, 16 A CEE-plug, storage case
141.572	VARIMAT V2, 230 V / 3680 W, with 80 mm nozzle for bitumen,
	Euro plug, device case
153.428	VARIMAT S, 230 V / 4600 W, Euro-plug
153.427	VARIMAT S, 400 V / 5700 W, CEE-plug

## **Accessories VARIMAT V2**



out any unevenness





Welded with standard nozzle.



Welded with grip nozzle 25% higher weld seam strength. Mainly for TPO sealing sheets.

	113.995 113.600	Grip-nozzle 30 mm for TPO / FPO single plies Grip-nozzle 40 mm for TPO / FPO single plies		143.179	Complete set with rake nozzle, 40 mm, and pressure roller, soft, 40 mm  Rake nozzle to solve the problems
	110.805	20 mm overlap welding nozzle for thermoplastic sealing sheeting			caused by bubbles forming on hard surfaces.
	107.067	Additional weight for even more pressure		116.323	Rake nozzle, 40 mm
(CETTALE)	139.048 107.649	Sturdy storage case $720 \times 470 \times 450$ mm plywood, green included with purchase Replacement rolls	<b>/</b>	143.163	Pressure roller, soft, 40 mm (silicone only)
	132.429	2 welding plates for optimum welding start included with purchase		108.923 108.924	Welding unit bitumen-kit 80 mm, 230 V Welding unit bitumen-kit 100 mm, 230 V
Additional	138.817	Steel brush to clean nozzle included with purchase		108.925	Welding unit bitumen-kit 120 mm, 230 V
	146.514	Solar profile kit for Renolit		108.927	Welding unit bitumen-kit 100 mm, 400 V / 6100 W
<b>(</b>	143.162	Gentle pressure roller for difficult ground conditions		108.928 115.892	400 V / 6100 W
	119.111	Chuck cone for replacing silicone pressure roller	13		
	151.530	Mirror welding kit, nozzle right, for special welding applications	-	159.408	Nozzle positioning gauge VARIMAT V2
	107.612	Heating elements 230 V / 4400 W			



**107.613** 400 V / 5500 W

# BITUMAT B2: The flameless.

Welding of modified bitumen sheeting (SBS, APP) with the flameless BITUMAT B2 is much safer than welding with an open flame. The weld strength is significantly better and the single step process makes welding more economical.



Easy unit guidance and clean working with the BITUMAT B2.

#### Hot-air welder

## **BITUMAT B2**



- Flameless welding of modified bitumen
- No shrinking of the insulation due to integrated air dam
- Uniform welding results
- High working speed
- Requires only one user to efficiently weld seams (torch welding requires two)

Technical data		
Voltage	V~	230 / 400
Power	W	6700 / 6700
Temperature	°C	20 – 650
Speed	m/min	0.8 - 12
Air flow range	%	85 – 100
Welding nozzle width	mm	75 / 100 / 120
Size $(L \times W \times H)$	mm	$690 \times 490 \times 330$
Weight	kg	40 (with cable)
Conformity mark		C€
Approval mark		<b>\$</b>
Protection class I		<b>(1)</b>

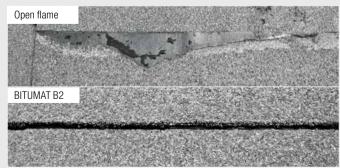
## Article No.:

140.438	BITUMAT B2 400 V / 6700 W, 75 mm, 16 A-CEE-plug			
140.437	BITUMAT B2 400 V / 6700 W, 100 mm, 16 A-CEE-plug			
140.436	BITUMAT B2 230 V / 6700 W, 75 mm, 32 A-CEE-plug			
138.386	BITUMAT B2 230 V / 6700 W, 100 mm, 32 A-CEE-plug			
Additional versions available upon request				

## **Accessories BITUMAT B2**

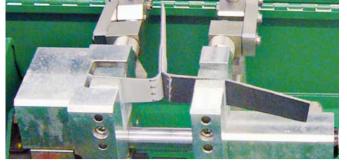
	138.048	75 mm bitumen nozzle
St.	138.047	100 mm bitumen nozzle
	137.895 137.896 140.229 140.228 156.447 158.222	100 mm pressure roller with gap 75 mm pressure roller with gap 100 mm pressure roller without gap 75 mm pressure roller without gap 80 mm silicon pressure roller 100 mm silicon pressure roller
6	140.476	Lifting device
	155.328	BITUMAT B2 120 mm bitumen kit
LEISTER .	140.489	Sturdy storage case, 750 × 555 × 450 mm (included with purchase)
	126.594	Heating elements 400 V / 6500 W
	126.386	230 V / 6500 W

Considerably better welding results when compared with open flame tools. No damage to insulating material due to integrated air dam.



# **EXAMO:** The inspector.

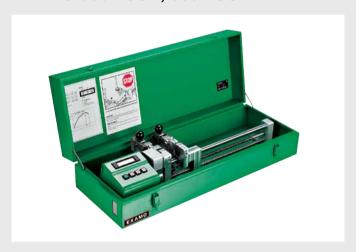
Is your seam sealed? Can it withstand the specified peel, tensile and shear forces? EXAMO performs tests at the construction site – quick, reliable and uncomplicated.



Testing a weld seam with the EXAMO USB.

#### Tensiometer

## EXAMO 300F USB, 600F USB



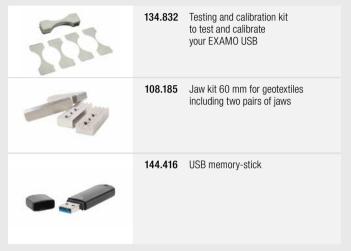
- · Construction-site approved
- Handy, robust and reliable
- Testing of elongation, peak force, tear force, test speed and position
- With jaws also suitable for geo textiles (see accessories)
- Electronic recording of the measurement data

Technical Data			
Туре		300F USB	600F USB
Voltage	V~	230	230
Power	W	200	200
Tensile load	N	4000	4000
Jaw spacing	mm	5 – 300	5 – 600
Range	mm	300	600
Test speed	mm/min	20 - 550	20 – 550
Sample thickness	mm	max. 7	max. 7
Sample width	mm	max. 40 (60 optional)	max. 40 (60 optional)
Size (L $\times$ W $\times$ H)	mm	750 × 270 × 190 (case)	$1050 \times 270 \times 190$ (case)
Weight	kg	14	17.5
Conformity mark		C€	C€
Protection class I		<b>(1)</b>	<b>(1)</b>

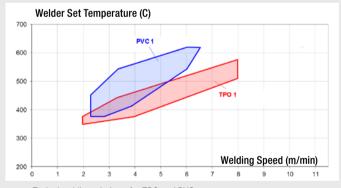
#### Article No.:

139.059 EXAMO 300F USB, 230 V / 200 W, incl. USB memory stick, Euro plug 139.060 EXAMO 600F USB, 230 V / 200 W, incl. USB memory stick, Euro plug

# Accessories EXAMO 300F USB, 600F USB



Leister offers a service to create a welding window. With new sealing sheets in particular, it is important to have the right starting parameters.



Typical welding windows for TPO and PVC





# TRIAC ST - Design meets experience

The new TRIAC ST from Leister is primarily used for welding and plastic fabrication. During its development, a deliberate choice was made to do without extra technical features. Instead it is distinguished by comfort, being reliable versatile, robust and user friendly, like its predecessor the TRIAC S. A prominent feature here is the two-component handle, which is not only attractive, but also gives the user perfect grip. The low weight of less than 1 kg/2.18 lbs ensures a perfect weight balance.



# TRIAC AT: Robust and intelligent.

The TRIAC AT is an intelligent hot-air hand tool for welding and shrinking plastics that is suitable for on-site use. It is designed for the needs of even the most demanding professional. Every tool undergoes stringent quality checks prior to leaving the factory in Switzerland. This high-quality hot-air hand tool is equipped for all situations. Its universal areas of application are virtually unlimited. The TRIAC AT will continue to prove its merit in any weather condition and is just as effective outside as it is indoors – all during continuous operation.

#### Hot-air hand tool

#### TRIAC ST



- Suitable for the work site
- Functional design: two-component handle grip and optimum center of gravity ensure good ergonomics
- Quick clean air filters
- Automatic carbon stop and heating element protection provide automatic protective measures

Technical data		
Voltage	V~	120 / 230
Frequency	Hz	50 / 60
Power	W	1600 / 1600
Temperature	°C	40 – 700
Air volume (20°C)	I/min	240 (500 at max. temp)
Dynamic pressure	Pa	3000
$\varnothing$ Nozzle holder	mm	31.5
Emission	dB(A)	67
Size (L $\times \varnothing$ )	mm	$338 \times 90$ , handle $\varnothing 56$
Weight	kg	<1 (without power cord)
Conformity mark		C€
Approval mark		\$ [©
Protection class II		

#### Article No.:

141.308	TRIAC ST, 120 V / 1600 W for push-fit nozzles with UK-plug
141.309	TRIAC ST, 230 V / 1600 W for push-fit nozzles with UK-plug
141.311	TRIAC ST, 230 V / 1600 W for push-fit nozzles with CH plug
141.227	TRIAC ST, 230 V / 1600 W for push-fit nozzles with Euro plug
144.013	TRIAC ST, 230 V / 1600 W for screw-on nozzles with Euro plug
153 891	TRIAC ST. 220 V / 1600 W for push-fit pozzles with KR-plug

#### Hot-air hand tool

#### TRIAC AT



- Suitable for the work site
- Closed loop controlled temperature
- Open loop controlled air volume
- Intelligent «e-Drive» operating unit
- Ergonomic handling
- Modern design

Technical data					
Voltage	V~	120 / 230			
Frequency	Hz	50 / 60			
Power	W	1600 / 1600			
Temperature	°C	40 – 620			
Air volume (20°C)	I/min	160 - 240 (500 at max. temp)			
Dynamic pressure	Pa	1600 – 3000			
$\varnothing$ Nozzle holder	mm	31.5			
Emission	dB(A)	67			
Size $(L \times \varnothing)$	mm	$338 \times 90$ , handle $\varnothing 56$			
Weight	kg	1 (without power cord)			
Conformity mark		C€			
Approval mark		<b>\$</b> [\$			
Protection class II					
Article No.:	Article No.:				
141.319 TRIAC AT. 120 V / 1600 W. with UK-plug					

Article No	).;	
141.319	TRIAC AT, 120 V / 1600 W, with UK-plug	
141.320	TRIAC AT, 230 V / 1600 W, with UK-plug	
141.314	TRIAC AT, 230 V / 1600 W, with Euro-plug	
141.322	TRIAC AT, 230 V / 1600 W, with CH-plug	
142.737	TRIAC AT, 230 V / 1600 W for screw-on nozzles with Euro plug	
148.005	TRIAC AT, 220 V / 1600 W, for push-fit nozzles with KR-plug	





Lap welding made easy.

# Accessories TRIAC ST / TRIAC AT

	107.123 107.132 107.133 107.129 107.131	Wide slot nozzle, push-fit 20 mm, angled 40 mm, standard nozzle 40 mm, perforated 60 mm for bitumen 80 mm for bitumen (more: www.leister.com "downloads")
	105.475 105.485 105.494	Wide slot nozzle 20 mm, straight 25 mm, straight 30 mm, angled
	105.487	Wide slot nozzle 20 mm, curved and angular, with clamping angle inwards
	100.303	$\varnothing$ 5 mm, tubular nozzle, push-fit
	105.575	$\varnothing$ 5 x 100 mm, tubular nozzle, push-fit
	106.982	$\varnothing$ 5 x 150 mm, extension nozzle, push-fit
	105.576	tubular nozzle $\varnothing$ 5 mm, 90° curved



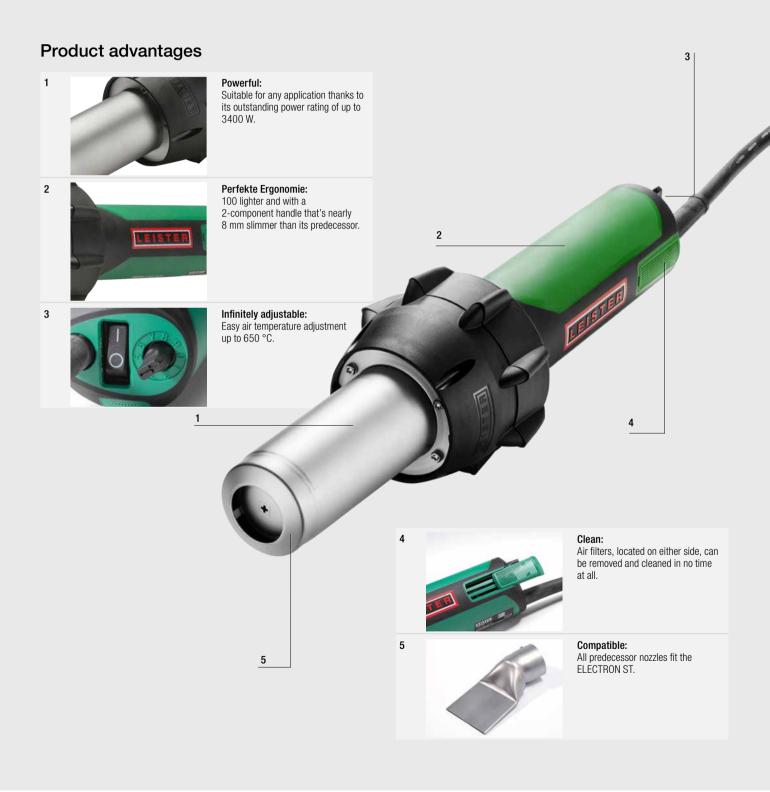


Essential working device. The TRIAC is a partner you can rely on for detail work.



# **ELECTRON ST - Strong, compact and handy**

The new ELECTRON ST is a real powerhouse among Leister's hand tools. The appearance of this tool has been modeled after the new TRIAC range. For the user, this means improved ergonomics and, as a result, the ability to work in more comfort. Existing ELECTRON nozzles fit the new model.





Work safely with hot air.

#### Hot-air hand tool

# **ELECTRON ST**



- Suitable for construction sites
- Leister's most powerful hand tool
- Easy-clean air filter
- Carbon stop and heating element protection provide automatic protective measures
- Sturdy tool case supplied

Technical data		
Voltage	V~	230 / 230 / 200 / 120
Frequency	Hz	50 / 60
Power	W	2300 / 3400 / 3000 / 2400
Temperature	°C	40 – 650
Air volume (20°C)	I/min	360 (700 at max. temp)
Dynamic pressure	Pa	3400
Ø Nozzle holder	mm	50
Emission	dB(A)	67
Size (L $\times \varnothing$ )	mm	$338 \times 90$ , handle $\varnothing 56$
Weight	kg	1.1 (without power cord)
Conformity mark		C€
Approval mark		<b>3 3</b>
Protection class II		

#### Article No.

145.567	ELECTRON ST, 230 V / 3400 W for push-fit nozzles with Euro plug
149.673	ELECTRON ST, 230 V / 2300 W for push-fit nozzles with Euro plug
145.563	ELECTRON ST, 120 V / 2400 W for push-fit nozzles with UK plug
145.568	ELECTRON ST, 230 V / 3400 W for push-fit nozzles with UK plug
154.839	ELECTRON ST, 220 V / 3400 W for push-fit nozzles with KR-plug

# **Accessories ELECTRON ST**





# HOT JET S: Small and powerful.

As the most compact hot-air hand tool from Leister, the HOT JET S' low weight of 600 grams (including cord and slim handle) ensures high-powered, fatigue-free welding.

#### Hot-air hand tool

# **HOT JET S**



- The smallest Leister hot-air hand tool
- Stepless, electronically controlled temperature
- Stepless, electronically controlled air flow
- Low noise
- Flexible, integrated tool stand

## Accessories HOT JET S

	<b>107.141</b> 15 mm wide slot nozzle, push-fit	15 mm wide slot nozzle, push-fit
14.	107.142	20 mm wide slot nozzle, push-fit
	105.549	10 x 2 mm wide slot nozzle
	107.144	arnothing 5 mm tubular nozzle, push-fit
	105.556	20 mm angled nozzle, 70° angled, push-fit
9 /	106.989	3 mm speed welding nozzle, push-fit on $\varnothing$ 5 mm tubular nozzle
	106.990	4 mm speed welding nozzle, push-fit on $\varnothing$ 5 mm tubular nozzle
D	106.991	5 mm speed welding nozzle, push-fit on $\varnothing$ 5 mm tubular nozzle

Technical data		
Voltage	V~	120 / 230
Frequency	Hz	50 / 60
Power	W	460 / 460
Temperature	°C	40 – 600
Air volume (20°C)	I/min	40 - 110 (200 at max. temp)
Pressure static	Pa	230 – 1600
Ø Nozzle holder	mm	21.3
Emission	dB(A)	59
Size (L $\times \varnothing$ )	mm	$235 \times 70$ , handle $\varnothing 40$
Weight	kg	0.4 (without power cord)
Conformity mark		C€
Approval mark		<b>\$</b> [©
Protection class II		

#### Article No.:

100.648 HOT JET S, 230 V / 460 W, with Euro plug
100.862 HOT JET S, 120 V / 460 W, without plug
100.854 HOT JET S, 230 V / 460 W, with AUS plug
140.030 HOT JET S, 220V / 460W for push-fit nozzles with KR-plug



Suitable for complicated details or in tight spaces.



Leister scissors with special serrated edge for complex requirements when cutting plastic sheets.

#### Hot-air hand tools

## General accessories

C. C	106.974	80 mm silicone pressure roller
	140.160 140.599	40 mm silicone pressure roller with ball bearings (silicone Spare roll for 140.160
	140.161 140.598	Pressure roller 28 mm, with ball bearings (silicone) Spare roll for 140.161
0	106.976	28 mm pressure roller (PTFE)
	106.972	Brass pressure roller with ball bearings
	138.314	Seam probe tester for overlap seams
	151.188	Chamfer plane for T-joins on
20	157.544	Leister Universal scissors 260 mm with special shaft grinding
0	159.514	Weld seam test template
A Land and Land	116.798	Brass brush
	107.348	Tool rest for TRIAC AT, TRIAC ST, ELECTRON ST

137.855 Leister cutter with four spare blades 138.902 Hooked blade for LEISTER-cutter (10 dispenser with 10 pcs=100 pcs) 138.539 Straight-edge blade for LEISTER-cutter (10 dispenser with 10 pcs = 100 pcs) 151.382 Inside corner tool 116.586 Storage case for TRIAC AT, TRIAC ST, ELECTRON ST 160.353 Cable cord roller 25 m, with 1 × CEE 400V and 2 × EU socket 230V Cable cord roller 25 m, with 1 × CEE 161.152 400 V and 2  $\times$  T23 CH socket 230 V 161.207 Cable cord roller 25 m, with 1  $\times$  CEE 400 V and  $2 \times \text{Typ}$  E with ground pin socket 230 V 164.048 Cable cord roller 45 m, 4 × 230 V, EU socket 160.015 Cable extension cord 15 m PUR 5 x 2.5 mm2, with CEE 400V plug 159.239 Cable extension cord 15 m PUR 3 x 2.5 mm2, with EU plug 230V



Kehlfix is the economic tool for efficient working.

More at the new accessories catalog at www.leister.com/accessories

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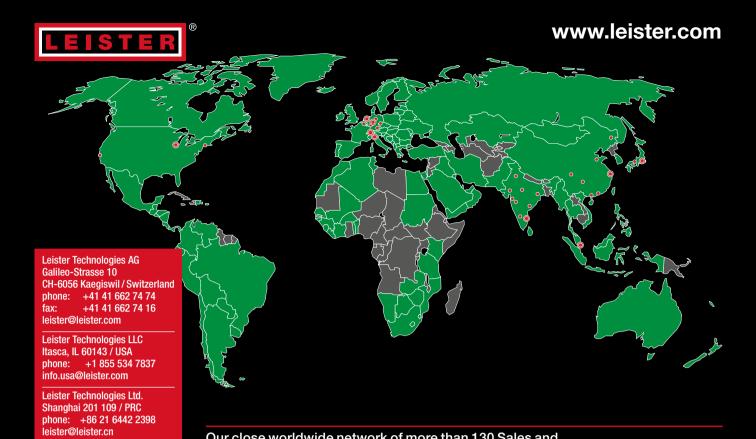
<<Leister - the synonym for quality,
innovation and technology. >>

With strong technical and application competence Leister provides standard products and custom engineered solutions to all major industries.

Recognized as the world-wide leader in developing and producing quality products.

The Leister Group, its employees and distribution network are committed to be strong and reliable partners, giving you the opportunity to move your business forward. >>

> Serving all corners of the globe since 1949, with representation in over 100 countries we are local world wide and close to our customers.



# Our close worldwide network of more than 130 Sales and Service Centres in more than 100 countries.

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Austria	Turkey	Russia	Ecuador	Botswana	Greater China
Belgium	United Kingdom	Serbia	Peru	Egypt	India
Cyprus	Vatican	Slovakia	Venezuela	Ivory Coast	Indonesia
Denmark	Albania	Slovenia		Kenya	Japan
Finland	Armenia	Ukraine	Central Asia:	Lesotho	Korea
France	Azerbaijan		Kazsachstan	Libya	Malaysia
Germany	Belarus	Americas:	Kyrgyzstan	Malawi	Mongolia
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