

# **Plastic Fabrication**

2019/2020



We know how.





Dear Leister customers

The selection of machines and equipment greatly influences the quality and success of your work. That is why we offer solutions that you can always count on and with which you are guaranteed to be able generate added value.

Our goal is to exceed your expectations. All of our devices and machines are designed and produced in Switzerland, because for us, quality and innovation are the highest priority. We have more than 70 years of experience in the fields of plastic welding and industrial process heat applications, and are constantly expanding this. Through direct contact with you in your workshop, at the construction site and through social media, we collect the necessary input that we then incorporate into the next generation of devices. Our engineers and designers combine your ideas with the latest technology to create unique products that meet your requirements. Here, we place particular importance on functionality, ergonomics and durability. That is why you can count on a reliable welder in all locations and environments.

We maintain a global and close-knit service and distribution network which enables us to serve you quickly and easily. Our expert distributors and own associations ensure that you can access our services across the globe.

In the following pages, see for yourself how our extensive product range will be able to support you in your work. You will also find a great deal of useful information on plastic welding in the brochure. Motivated by our principle, "Leister. We know how," we are eager to share our experience with you in order to make your work easier.

I hope you enjoy reading our brochure!

#### Reto Britschgi

Product Manager Plastic Fabrication

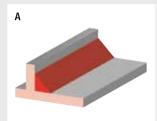


# Plastic welding with Leister

With plastic welding, workpieces made of thermoplastic are joined inseparably to one another using a combination of thermal energy and pressure. Central factors are welding speed and the length of the welding process. Plastic welding is used in many areas: For the processing of tarpaulins and plastic sealing sheets, on the roof, in earthworks, hydraulic engineering or tunnel construction, for floor coverings, in vehicle repairs and in equipment construction.

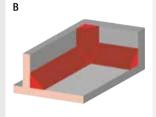
#### Know-how

# Welding seam geometries galvanic tank



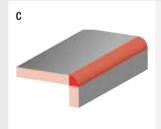
#### Fillet weld

The fillet weld is one of the most frequently-use seam geometries. It is produced by welding two workpieces that meet in a T-joint.



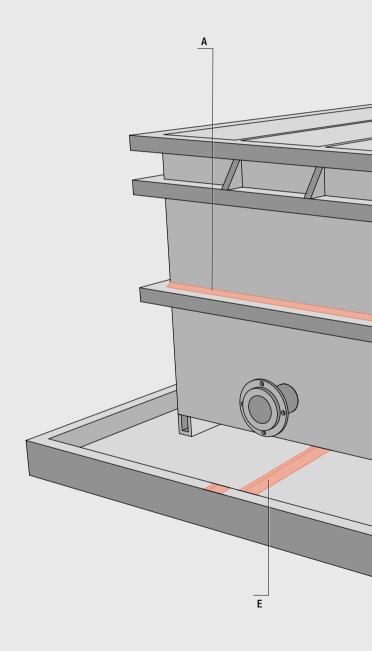
#### Interior corner seam

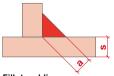
Interior corner seams are generally used on difficult-to-reach locations. Free forms and spline-shaped weld seam geometries are welded most efficiently like this.

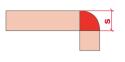


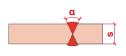
#### Corner seam appearance

The outer corner seam is a fillet weld in which the weld seam runs along the edge of the workpieces which are standing together. Consequently, the weld is made along the outer longitudinal side (edge).

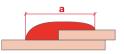












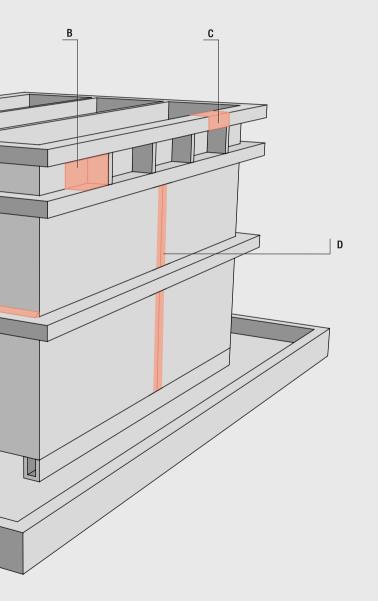
Fillet welding seam

Corner outside seam

**X-seam**  $s = 10 - 40 \text{ mm} = \alpha 60^{\circ}$   $s = 50 - 60 \text{ mm} = \alpha 50^{\circ}$ 

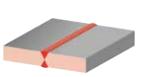
 $\begin{array}{l} \text{V-seam} \\ s = \ 5 - 20 \ \text{mm} = \alpha \ 60^{\circ} \\ s = 25 - 30 \ \text{mm} = \alpha \ 50^{\circ} \end{array}$ 

Overlap seam



#### X-seam

The double-V seam is also known as an X-seam. It is a type of butt weld and consists of a combination of two V-seams on each of the two sides of the components to be joined.



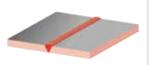
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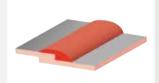
## V-seam

In order to achieve the V-shaped angle that is typical for the V-seam, the workpieces are either beveled or positioned at an appropriate angle to each other.



#### Lap seam

Lap seams are mainly used for plastic sheets. Here, the sheets are arranged on top of each other and the weld seam is laid on the upper exposed material edge.





FUSION 2, compact and powerful

know-how

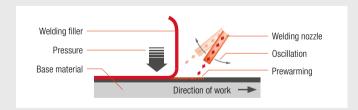
# Thermal joining of plastics

Plastic welding requires a correspondence between the three welding parameters temperature, pressure and speed. In contrast to other joining methods, welding can achieve high resiliency and a strong, homogeneous welding seam. Plastic compounds are extremely robust and perfectly sealed when processed correctly. They can also be repaired without a loss of strength.

# Hot gas welding with the torch separate from filler rod (WF)

Hot gas welding with the torch separate from filler rod is used primarily for areas that are difficult to access and for short seams. This welding process is preferred for processing amorphous plastics, in particular PVC. Especially with manual welding, pay special attention to maintaining uniform pressure and constant speed.

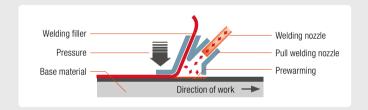
During welding, press the wire by hand vertically onto the groove. The force applied depends on the base material chosen and the dimension of the welding wire. Apply the heat flowing out of the tubular nozzle alternately to the welding wire and to the joint in an oscillating motion in the direction of welding until the end of the seam is reached. When realized correctly with the right temperature and appropriate pressure, a welding seam is formed on both sides of the weld bead in the form of a uniform double bead.



# High-speed hot gas welding (WZ)

High-speed hot gas welding requires a high-speed welding nozzle that corresponds to the shape of the fill material. The process is faster, more uniform, and consequently more efficient than pendulum welding. Furthermore, larger cross-sectional surfaces of the welding wire can be processed in one pass. This leads to less residual stress and thus to a lower welding effort.

Hold the welder with one hand, and with the other hand, press the welding wire into the nozzle. The nozzle design divides the hot gas, which in this way heats both the base material and the fill material. The latter is led through a preheating chamber and plasticized shortly before the two materials meet. The presser flap on the end of the nozzle is responsible for the welding force. You can finish the resulting weld seam using a suitable scraper after the welding process.

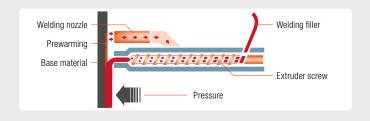


# Hot gas extrusion welding (WE)

Hot gas extrusion welding is preferred over high-speed hot gas welding for wall thicknesses from about 6 mm. With extrusion welding, shorter working times, higher strength and lower internal stress is expected compared to manual welding. This leads to higher process reliability and greater efficiency.

For this, you require a welding shoe corresponding to the welding geometry and a welding filler consisting of the same material as the base material, which is plasticized in the extruder.

First, put joining surfaces into the thermoplastic state using hot air. Immediately press the extrudate onto the surfaces or into the joint using the welding shoe. Depending on the working position, you should apply different intensities of pressure. Welding speed is determined by the quantity of extrudate and by the dimensions of the weld seam. In addition, it must correspond to the prewarming of the base material.





# Welding parameters for hand welding

Based on DVS 2207-3

Welding Process	Materials	Abbreviations	Hot gas temperature <sup>1)</sup> °C	Hot gas volume flow <sup>2)</sup> I/min	Welding speed 3)		force (N) wire ø 4mm
	High-density polyethylene	PE-HD <sup>4)</sup>	300 320	40 50	70 90	8 10	20 25
	Polypropylene, Types 1, 2, 3	PP-H; PP-B; PP-R	305 315	40 50	60 85	8 10	20 25
	Unplasticised polyvinyl chloride	PVC-U	330 350	40 50	110 170	8 10	20 25
	Chlorinated polyvinyl chloride	PVC-C	340 360	40 50	55 85	15 20	20 25
	Polyvinylidene fluoride	PVDF	350 370	40 50	45 50	15 20	25 30
Free hand welding	Acrylonitrile butadiene styrene	ABS <sup>6)</sup>	350	N/A	N/A	N/A	N/A
(WF)	Polycarbonate	PC 6)	350	N/A	N/A	N/A	N/A
,	Polyamide	PA 6)	400	N/A	N/A	N/A	N/A
	Polybutylene terepht- halate	PBT <sup>6)</sup>	350	N/A	N/A	N/A	N/A
	Low-density polyethylene	PE-LD <sup>6)</sup>	270	N/A	N/A	N/A	N/A
	Polyurethane	PUR (Thermoplast) 6)	300	N/A	N/A	N/A	N/A
	XENOY	XENOY PC/PBTB 6)	350	N/A	N/A	N/A	N/A
	Plasticised polyvinyl chloride	PVC-P 6)	350	N/A	N/A	N/A	N/A
	Polyethylene terephthala- te glycol-modified	PETG <sup>6)</sup>	200 215	N/A	N/A	N/A	N/A
	Polyvinyl chloride	PE-HD	300 340	45 55	250 350	15 20	25 35
	Polypropylene, Types 1, 2, 3	PP-H; PP-B; PP-R	300 340	45 55	250 350	15 20	25 35
	Unplasticised polyvinyl chloride	PVC-U	350 370	45 55	250 350	15 20	25 35
	Chlorinated polyvinyl chloride	PVC-C	370 390	45 55	180 220	15 25	30 35
Draw welding (WZ)	Polyvinylidene fluoride	PVDF	365 385	45 55	200 250	15 25	30 35
	Ethylene Chloro Tri Fluoro Ethylene	E/CTFE 5)	350 380 <sup>5)</sup>	50 60 5)	220 250	10 15	N/A
	Fluorinated ethylene propylene	FEP	380 390	50 60	60 80	10 15	N/A
	Tetrafluorethylen Perfluormethylvinylether	MFA	395 405	50 60	60 80	10 15	N/A
	Perfluoroalkoxy alkanes	PFA	400 410	50 60	70	10 15	N/A

Please note:
The indicated welding parameter may vary depending on the ambient temperature and the material configuration.
Test welds need to be done and the parameter aligned accordingly! Leister takes no responsibility for poor quality welding!

Measured 5mm in the nozzle, in the centre of the nozzle opening.
 Drawn-in cold air volume at the ambient pressure.
 Depending on the welding filler material diameter and the welding groove geometry.
 PE 63, PE 80, PE 100
 Nitrogene recommended
 LEISTER empiric parameters

# Welding parameters for extrusion welding

Based on DVS 2207-4

Welding Process	Materials	Abbreviations	Material temperature <sup>1)</sup> °C	Hot gas temperature <sup>2)</sup> °C	Hot gas volume flow <sup>3)</sup> I/min	Welding speed <sup>5)</sup> mm/min
	High-density polyethylene	PE-HD <sup>4)</sup>	210 230	210 300	300	300
	Polypropylene, Types 1, 2, 3	PP-H; PP-B; PP-R	210 240	210 300	300	300
	Unplasticised polyvinyl chloride	PVC-U	190 200	330 360	300	300
Extrusion welding (WE)	Impact resistant polyvinyl chloride	PVC-HI	170 180	280 340	300	300
	Chlorinated polyvinyl chloride	PVC-C	195 205	300 360	300	300
	Polyvinylidene fluoride	PVDF	240 260	280 350	300	300
	Polyamide 6 6)	PA 6	280	315	300	300
	Polycarbonate 6)	PC	270	315	270	300
	Acrylonitrile butadiene styrene <sup>6)</sup>	ABS	265	300	150	300
	Polystirene 6)	PS	245	280	300	300
	Polypropylen Athylen Propylen Terpolymer <sup>6)</sup>	PP-EPDM	200 230	200 290	300	300
	Polyurethane (Thermoplast) 6) 7)	PUR	180	260 300	300	300

Measured with an insert thermometer at the exrudate outlet of the hand extruder. Measured 5mm in the nozzle, in the centre of the nozzle opening. Drawn-in cold air volume at the ambient pressure. PE 63, PE 80, PE 100 Depending on the preheating LEISTER empiric parameters Welding rod has to be predryed



Please note:
The indicated welding parameter may vary depending on the ambient temperature and the material configuration.
Test welds need to be done and the parameter aligned accordingly! Leister takes no responsibility for poor quality welding!

#### **Know-how**

# Welding errors

In addition to a failure to adhere to the welding parameters, the following errors can lead to cavities, vacuoles and poor weld quality:

- Excessively high temperature
- Residual moisture in the welding filler
- Excessively high air humidity
- Wet hands
- Excessively cold welding shoe
- Low-quality plastic

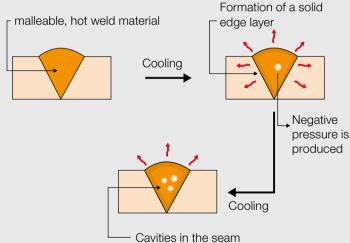
Base material and welding filler made of polyolefins can absorb moisture. The thicker the seam, the more frequently these phenomena occur. For this reason, you should store materials in a dry place and in their original packaging. You should avoid temperature differences between the welding parts to prevent the formation of condensation. Very thick welding seams must be welded in several work steps.



Rough surfaces on the seam can therefore be because...

- ...the welding shoe is too short.
- ...the welding shoe is too cold.
- ...the surface over which the welding shoe glides is too rough.

Vacuoles are caused by the excessively fast cooling of large weld seam cross-sections.





Bad example



Good example

# Fields of application

Hot gas welding with the torch separate from filler rod, highspeed hot gas welding and hot gas extrusion welding are used in many areas.

#### General tank construction

Plastic is preferred for producing receptacles and tanks. Depending on the storage medium, they have significant advantages over metallic materials.

#### Galvanic

Galvanic processes are usually carried out using chemicals. The baths must also be resistant to thermal and electrical influences.

#### Water management

Fresh water and service water infrastructures place high demands on hygiene and corrosion. Thermoplastics offer stable behavior in this respect.

#### Ventilation

Ventilation systems in industrial environments often transport aggressive media. A long-term solution is only possible with the right plastic.

#### Maritime Industry

Boats, rafts and floating docks made of polyolefins are positively buoyant by nature, extremely robust and resistant to salt water.

#### Aquaculture, greenhouse beds

Aquaculture and greenhouses are very demanding in terms of microbes, fungi and chemical influences. Containers and pipes must be leaktight and capable of being sterilized.

#### Pipeline construction

Polyethylene is the preferred material for unpressurized pipelines and for jacket tubes for long-distance pipelines. It is very durable against mechanical stress and can be processed extremely flexibly.

#### Plastic repair

Expertly performed repairs on thermoplastics restore 100% of the original function.



Storage tanks made of polyethylene



Galvanic bath made of polypropylene © Collini www.collini.eu



Working boats mad of polypropylene





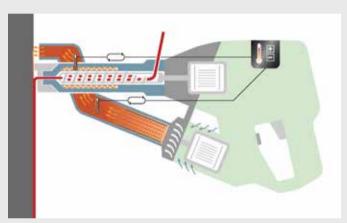


# WELDPLAST - Closed loop system

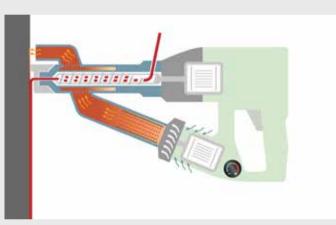
- Closed-loop control
- Little welding experience required
- Integrated display and temperature probe
- Precise temperature independent of environmental factors or quality of voltage source -> process reliability
- DVS-compliant

# **FUSION - Open loop system**

- Open-loop control
- Requires more welding experience
- Neither display nor temperature probe
- Temperature depends on environmental factors and voltage source

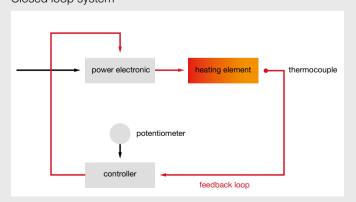


WELDPLAST

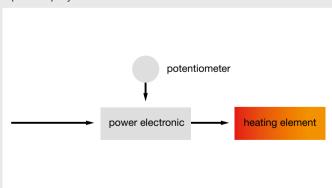


**FUSION** 

# Closed loop system



# Open loop system









# Air purification system, Spain. Material: HD-PE



The Wave House, San Diego. Material: PVC



Electroplating tank, Turkey. Material: PP

# Plastic Fabrication

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# The right tool for every application

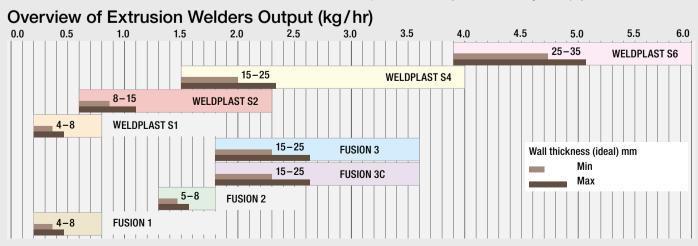
LEISTER hand extruders differ in their method of process control, output volume and design. To achieve optimal welding results, it is important to chose the right tool. Decisive selection criteria are the plastics to be processed, the thickness of the welding material, the product requirements and the welder's expertise. The following two tables serve as a selection guide. For more detailed information, please contact your LEISTER sales partner.

# **Product comparison**

	Digi	Air heated extrusion welders						
		-	1			n de		- 100 B
Device type	WELDPLAST S6	WELDPLAST S4	WELDPLAST S2	WELDPLAST S1	FUSION 3	FUSION 3C	FUSION 2	FUSION 1
Output (HDPE) kg/hr	3.9 – 6	1.5 – 4	0.6 - 2.3	0.2 - 0.8	1.8 – 3.6	1.8 – 3.6	1.3 – 1.8	0.2 - 0.8
Material	HD-PE, PP	HD-PE, PP	HD-PE, PP, PVC	PE, PP, PVC, etc.	HD-PE, PP	HD-PE, PP	HD-PE, PP	PE, PP
Wall thickness mm	15 – 40	8 – 35	4 – 20	4 – 10	8 – 25	8 – 25	6 – 15	4 – 10
Welding rod $\varnothing$ mm	4 – 5	3-4/4-5	3 – 4	3 – 4	3-4/4-5	3-4/4-5	4	3 – 4
Weight kg	14	8.7	5.8	4.7	7.2	6.9	5.9	3.4
Length mm	821	560	450	435	690	588	450	435
Voltage V~	230	230	230	230 / 120	230	230	230	230
Screw extruder	yes	yes	yes	yes	yes	yes	yes	yes
Container construction	<b>√</b> √	$\checkmark\checkmark$	$\checkmark\checkmark$	$\checkmark\checkmark$	$\checkmark\checkmark$	$\checkmark\checkmark$	$\checkmark\checkmark$	$\checkmark\checkmark$
Pipeline construction	<b>√</b> √	$\checkmark\checkmark$	$\checkmark\checkmark$	$\checkmark\checkmark$	$\checkmark\checkmark$	$\checkmark\checkmark$	$\checkmark\checkmark$	$\checkmark\checkmark$
Landfills / civil engineering	$\checkmark\checkmark$	$\checkmark\checkmark$	✓	O	$\checkmark\checkmark$	$\checkmark$	O	O
Brushless blower	yes	yes	yes	yes	no	no	no	no
Remarks	1	1	1	1	2	2	2	3
Catalog page	20	21	22 / 23	24	25 / 26	25 / 26	27	18 / 19

<sup>√</sup> very suitable 
✓ suitable 
✓ unsuitable 
1: Air and Plast temperatures electronically controlled with integrated display.

<sup>3:</sup> Warm air heated extruder, air temperature electronically controlled with integrated display.



<sup>2:</sup> Hot air heated extruder temperature controlled manually.



# Ingeniously simple - FUSION 1

Your satisfaction is our goal. Which is why we are developing welding devices to meet your requests and requirements. And with the usual LEISTER quality, of course. The reduced design of the FUSION 1 offers increased maneuverability when welding. Flexibility guarantees an optimally mountable handle. Ingeniously simple extrusion welding – FUSION 1.





FUSION 1 - More flexibility during welding thanks to its slim design.

## Digitally regulated extrusion welder

## **FUSION 1**



- Controlled: Automatically controlled air temperature
- Suspension device: Effortlessly weld longer by hanging up the device
- Compact and slimline: Thanks to integrated air guide

Technical data		
Voltage	V~	230
Power	W	1200
Materials		PE, PP
Welding rod $\varnothing$	mm	3 – 4
Output Ø 3 HD-PE	kg/h	0.2 - 0.5
Output Ø 4 HD-PE	kg/h	0.3 - 0.8
Size (L $\times$ B $\times$ H)	mm	$435 \times 92 \times 133$ (236 with handle)
Weight	kg	3.4
Conformity marking		C€
Protection class II		

#### Article No.:

162.799 FUSION 1, 120 V / 1450 W, with US-plug 162.800 FUSION 1, 230 V / 1200 W, with EU-plug 163.165 FUSION 1, 230 V / 1200 W, with CEE-plug

Included with purchase: FUSION 1, case, welding shoe, Allen key, instruction manual, handle

# **Accessories FUSION 1**



General accessories





# WELDPLAST S6: The workhorse.

WELDPLAST S6 is the world's highest rated handheld extrusion welder. With an output of 6 kg/hr, it is surprisingly maneuverable. It features a brushless, preheat motor, multifunction display and comfortable ergo-grip – making the S6 Leister's flagship extrusion welder.



The WELDPLAST S6 is guided easily with the practical control wheel grip.

#### Digitally regulated extrusion welder

# **WELDPLAST S6**



- 6 kg output per hour
- Highest possible preheating capacity
- Adjustable control wheel
- Maintenance-free hot-air blower
- Multifunctional display

Technical Data		
Voltage	V~	230
Power	W	4600
Material		PE / PP
Welding rod	mm	Ø 4 or Ø 5
Output	kg/h	3.9 - 6.0
Size $(L \times W \times H)$	mm	821 × 116 × 240
Weight	kg	14
Conformity mark		C€
Protection class I		<b>(1)</b>

#### Article No.:

134.318 WELDPLAST S6, 230 V / 4600 W, CEE 32A plug

Included with purchase: WELDPLAST S6, overlap welding shoe, storage case

## **Accessories WELDPLAST S6**

	146.239 146.240	$\label{eq:welding} \begin{array}{l} \textbf{Welding shoe complete} \\ 54\times40\times52 \text{ mm blank welding shoe} \\ 74\times50\times58 \text{ mm blank welding shoe} \end{array}$
	146.241 146.706 146.242 145.899	25 mm overlap 30 mm overlap 35 mm overlap 40 mm overlap
	146.245 146.246 146.247	20 mm V-seam 25 mm V-seam 30 mm V-seam
	146.232 146.233 146.234	20 mm fillet weld seam (a = 14 mm*) 25 mm fillet weld seam (a = 17.5 mm*) 30 mm fillet weld seam (a = 21 mm*)
	146.644 146.646 146.652	Corner outside seam 10 mm Corner outside seam 12 mm Corner outside seam 15 mm
	146.230 146.218	Corner seam Ø 14 mm Corner seam Ø 20 mm
		*a = Welding seam thickness
	117.055	35 mm preheating nozzle, large
The state of the s	136.859	50 mm preheat nozzle, XL Large
•	117.790	Side hot-air guide
	149.744	Insulation sleeve WELDPLAST S6

General accessories



# WELDPLAST S4: The workmate.

The WELDPLAST S4 is the first extruder of its kind with a brushless, maintenance-free motor for generating preheated air. Output of up to four kilograms per hour is made possible thanks to the S4's powerful drive system.



The powerful WELDPLAST S4 in use.

#### Digitally regulated extrusion welder

## **WELDPLAST S4**



- Compact housing design reduces noise and guarantees optimal cooling for the electronics and drive.
- Microprocessor regulates the welding process and monitors the tool
- Menu with function programs
- Dual-sided, twist-free wire intake
- Maintenance-free blower

Technical Data		
Voltage	V~	230
Power	W	3680
Material		PE / PP
Welding rod	mm	$\varnothing$ 3 – 4 / $\varnothing$ 4 – 5 mm
Output	kg/h	1.5 – 4.0
Size (L $\times$ W $\times$ H)	mm	560 × 110 × 300
Weight	kg	8.7
Conformity mark		C€
Protection class I		

#### Article No.:

116.948 WELDPLAST S4, 230 V / 3680 W, 3-4 mm, Euro plug, blank welding shoe

146.813 WELDPLAST S4, 230 V / 3680 W, 4 – 5 mm, Euro plug, welding shoe K 15

Included with purchase: WELDPLAST S4, preheat nozzle large, medium and small, storage case

## **Accessories WELDPLAST S4**



General accessories





# WELDPLAST S2 / S2 PVC: The masterpieces.

WELDPLAST S2 and S2 PVC are masterpieces of modern technology. While externally they fulfill the highest requirements of functionality and design, their interior satisfies the highest expectations concerning the material to be processed. The WELSDPLAST S2 PVC has integrated corrosion protection and has been especially designed to satisfy the high requirements of PVC extrusion welding. Their perfect seam quality makes both – WELDPLAST S2 and S2 PVC – reliable partners for today and tomorrow.

## Digitally regulated extrusion welder

## **WELDPLAST S2**



- Maintenance-free blower
- · Perfect weld seam quality
- Multifunctional display
- Ergonomic and handy
- Successfully operated worldwide

#### Digitally regulated extrusion welder

## **WELDPLAST S2 PVC**



- Optimized for PVC-U
- · Perfect weld seam quality
- PVC specific extrusion menu
- Corrosion protection
- Standby mode

Technical Data		
Voltage	V~	230
Power	W	3000
Material		PE / PP
ivialtiai		Other materials on request
Welding rod	mm	Ø 3 oder Ø 4
Output Ø 3 mm	kg/h	PE: 0.6 – 1.3   PP: 0.5 – 1.2
Output ∅ 4 mm	kg/h	PE: 1.0 – 2.0   PP: 0.9 – 2.0
Size $(L \times W \times H)$	mm	$450 \times 98 \times 260$
Weight	kg	5.8
Conformity mark		C€
Protection class I		<b>(1)</b>

#### Article No.:

127.215 WELDPLAST S2, 230 V / 3000 W, Euro plug

Included with purchase: WELDPLAST S2, welding shoe raw part, storage caseIncluded with purchase: WELDPLAST S4, preheat nozzle large, medium and small, storage case

Technical Data		
Voltage	V~	230
Power	W	3000
Material		PVC-U, PE, PP
ivialtiai		Other materials on request
Welding rod	mm	Ø 3 oder Ø 4
Output ∅ 3 mm	kg/h	PVC-U: 0.9 – 1.7   PE: 0.6 – 1.3
Output ∅ 4 mm	kg/h	PVC-U: 1.5 – 2.7   PE: 1.0 – 2.3
Size (L $\times$ W $\times$ H)	mm	$450\times98\times260$
Weight	kg	5.8
Conformity mark		C€
Protection class I		<b>(1)</b>

#### Article No.:

135.724 WELDPLAST S2 PVC, 230 V / 3000 W, Euro plug

Included with purchase: WELDPLAST S2 PVC, 3 preheati nozzles, welding shoe K 8 / 10 mm (Art. no. 146.236), storage case

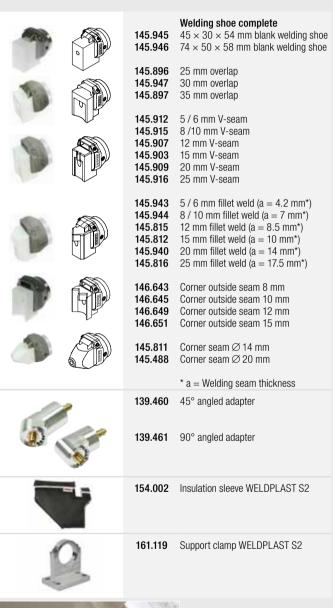


The handy WELDPLAST S2 in action.



Even inside radiuses are easy to weld.

## **Accessories WELDPLAST S2**



## Accessories WELDPLAST S2 PVC





With the WELDPLAST S2 perfect welds are possible



The 45° angled adapter for the WELDPLAST S2 facilitates welding in difficult positions. (accessory)

General accessories







# WELDPLAST S1: Outstandingly compact.

With the new WELDPLAST S1 compact extruder, you can achieve perfect seam quality



Nozzle welding made easy with the WELDPLAST S1.

#### Digitally regulated extrusion welder

## WELDPLAST S1



- Functional, ergonomic design with comfort grip areas
- Extremely high output power of 0.8 kg/h (HD-PE)
- Integrated LED lighting and hanging point
- Can work with all typical kinds of plastic
- Multifunction panel with predefined welding parameters
- BL blower, adjustable air volume

Technical Data		
Voltage	V~	230 / 120 / 100
Power	W	1600 / 1800 / 1500
Material		HD-PE, LD-PE, PP, PVC-U PVC-C, PVDF, ECTFE, PA
Welding rod	mm	Ø 3 – 4
Output	kg/h	0.2 - 0.8 (PVC up to 1.15 kg/h)
Size (L $\times$ W $\times$ H)	mm	435 × 91 × 264
Integrated welding profiles		HD-PE, PP, PVC-U,PVC-C, PVDF 10 free profile storage spaces
Weight	kg	4.7
Conformity mark		C€
Protection class I		

#### Article No.:

148.396 WELDPLAST S1, 230 V / 1600 W,  $\varnothing$  3 – 4 mm, Euro plug 148.395 WELDPLAST S1, 120 V / 1800 W,  $\varnothing$  3 – 4 mm, without plug 148.394 WELDPLAST S1, 100 V / 1500 W,  $\varnothing$  3 – 4 mm, Euro plug

Included with purchase: WELDPLAST S1, user manual, 4 pre-heating nozzles  $\varnothing$  14 mm, welding shoe K10, storage case

## **Accessories WELDPLAST S1**

	149.430	<b>Welding shoe complete</b> Blank
	149.402 148.627 149.401	Fillet weld 5/6 Fillet weld 8/10 Fillet weld 12
	149.388 149.383 149.385	V-seam 3 / 4 V-seam 5 / 6 V-seam 8 / 10
	149.364	Corner For additional welding shoes, see Weldplast S2 PVC
800	152.720	Nozzle extension
	153.143	Angled adapter 45°
7. PO 0	153.236	Angled adapter 90°
1	149.600	Top hot-air guide
<b>6</b>	149.456	Hot-air tube, position 6h $\varnothing$ 14 mm
U	149.461	Hot-air tube, position 6h Ø 16 mm
	149.467 149.469	Hot-air tube, position 9h/3h $\varnothing$ 14 mm (standard) Hot-air tube, position 9h/3h $\varnothing$ 16 mm
W-	154.107	Air nozzle set Ø 14 mm (standard)
10	154.106	Air nozzle set Ø 16 mm
	154.002	Insulation sleeve WELDPLAST S1/S2

General accessories



# FUSION 3: Long and slim.

With its long and narrow shape, the FUSION 3 enables comfortable work, even on the floor.

# FUSION 3C: Short and handy.

The somewhat shorter FUSION 3C provides an astounding output volume of up to 3.6 kilograms per hour.

#### Air heated extrusion welder

## **FUSION 3**



- High-quality welding performance
- Compact and handy
- Motor start-up protection prevents cold start
- Simple operation
- Dual-sided twist-free wire intake
- 360° rotating welding shoe

#### Air heated extrusion welder

## **FUSION 3C**



- High-quality welding performance
- Compact and handy
- Motor start-up protection prevents cold start
- Simple operation
- Dual-sided, twist-free wire intake
- 360° rotating welding shoe

Technical Data					
		Version	Ø3−4	Version	Ø4−5
Welding rod $\varnothing$	mm	3	4	4	5
Output PE	kg/h	2.0 - 2.5	2.7 - 3.6	2.1 – 2.6	2.7 - 3.6
Output PP	kg/h	1.8 - 2.3	2.5 - 3.4	1.8 - 2.4	2.5 - 3.4
Voltage	V~	230			
Power	W	3500			
Material		PE / PP			
Size (L $\times$ W $\times$ H)	mm	670 × 90	× 180		
Weight	kg	7.2			
Conformity mark		C€			
Protection class II					

#### Article No.:

118.300 FUSION 3, 230 V / 3500 W, welding rod  $\varnothing$  3 – 4 mm, Euro plug 144.615 FUSION 3, 230 V / 3500 W, welding rod  $\varnothing$  4 – 5 mm, Euro plug

Included with purchase: FUSION 3, welding shoe overlap 30 mm, storage case

Technical Data					
		Version	Ø3-4	Version	Ø4-5
Welding rod $\varnothing$	mm	3	4	4	5
Output PE	kg/h	2.0 - 2.5	2.7 - 3.6	2.1 - 2.6	2.7 - 3.6
Output PP	kg/h	1.8 - 2.3	2.5 - 3.4	1.8 - 2.4	2.5 - 3.4
Voltage	V~	230			
Power	W	3200			
Material		PE / PP			
Size $(L \times W \times H)$	mm	588 x 98 x	x 225		
Weight	kg	6.9			
Conformity mark		C€			
Protection class II					

#### Article No.:

123.866 FUSION 3C, 230 V / 3200 W, welding rod  $\varnothing$  3 – 4 mm, Euro plug 144.826 FUSION 3C, 230 V / 3200 W, welding rod  $\varnothing$  4 – 5 mm, Euro plug

Included with purchase: FUSION 3C, blank welding shoe, storage case





Perfectly stored in the case.



FUSION 3C during the welding of a fillet weld.

# Accessories FUSION 3 / 3C



The insulation sleeve protects the machine from heat loss, as well as protects the operator from direct contact with the extruder.



\* a = Welding seam thickness

General accessories



# FUSION 2: The small powerhouse.

The FUSION 2 convinces with its ergonomic design. The simple operation and first-class welding quality have helped it to become the breakthrough product.



In operation during container construction in China.

#### Air heated extrusion welder

## **FUSION 2**



- At 450 mm, it is the shortest in its performance class!
- Motor start-up protection prevents cold start
- Simple operation
- Dual-sided, twist-free wire intake
- 360° rotating welding shoe
- Integrated electronics for stepless adjustment of the preheating temperature and output quantity

Technical Data		
Voltage	V~	230 / 120
Power	W	2800
Material		PE / PP
Air temperature	°C	up to 340
Plastification temperature	°C	up to 300
Welding rod	mm	Ø 4
Output PE	kg/h	1.3 – 1.8
Size $(L \times W \times H)$	mm	$450\times98\times225$
Weight	kg	5.9
Conformity mark		C€
Protection class II		

#### Artikel-Nr.

119.200 FUSION 2, 230 V / 2800 W, Euro plug 150.102 FUSION 2, 120 V / 2800 W, CEE plug

Included with purchase: FUSION 2, blank welding shoe, storage case

## **Accessories FUSION 2**



General accessories





# Automated, modular, customized - WELDPLAST 200-i / 600-i

LEISTER offers you two modules for automated extrusion welding and 3D printing. WELDPLAST 200-i and 600-i are set up to allow both simple and fully automated expansion and can be mounted on robots or integrated into machines. This modular design allows you to bring your projects to fruition without making any compromises.

#### Built-in extruder module

## WELDPLAST 200-i / 600-i



#### Customized

Depending on requirements – choose between extruder modules which can be extended to meet specific needs



#### Modular

Select an extruder module and simply add the relevant hot air and communication components



#### Controlled

Monitor and control all parameters such as temperatures and emissions

The drive and communication components of both extruder modules, which can be freely chosen by the user, can be tailored fully to meet individual needs. By incorporating additional sensors, the process can be controlled and monitored as required.

Electrical and mechanical adaptation points are already set up so that the modules for various processes such as those requiring preheated air can be integrated.

State-of-the-art industrial interfaces or similar interfaces can be installed to aid communication.





WELDPLAST 200-i / 600-i – robotic extrusion welding and 3D printing designed for automated continuous operation

#### Built-in extruder module

# WELDPLAST 200-i / 600-i



- Automated: Designed for automated continuous operation
- **Up to date:** All components are compliant with current industry standards

Technical data		WELDPLAST 200-i	WELDPLAST 600-i
Heating voltage	V~	230	230
Heating power	W	600	800
Welding rods / filament $\varnothing$	mm	3 – 4	4 – 5
Output ∅ 4 HD-PE	kg/h	2	6
Plastic		HD-PE, LD-PE, PP, PVC-U, PVC-C, PVDF, ECTFE, ABS, PC, PA, PS, PUR	HD-PE, LD-PE, PP
Weight full disassembly	kg	15	22
Dimensions full disassembly $(L \times W \times H)$	mm	660 × 191 × 220	876 × 191 × 210
Protection class I		<b></b>	

Included with purchase: Extrusion module, CAD data, parts list, operating manual, suggested electrical diagram

# WELDPLAST 200-i

	163.322	Extruder module 200-i
a sing	163.575	Connection kit 200-i / 600-i
	164.414	Preheated air kit 200-i
	140.455	LHS 21S Classic LHS 21S Premium LHS 21S System

## WELDPLAST 600-i







Check the weld seam dimension easily.

# General accessories hand extruder





Heating element 230 V / 2600 W, WELDPLAST S6 134.567 109.984 230 V / 2200 W, WELDPLAST S4 / S2 / S2 PVC 230 V / 1100 + 1100 W, FUSION 3 230 V / 1750 W, FUSION 2 / 3C 113.268 123.561 149.265 230 V / 1000 W, WELDPLAST S1 149.529 120 V / 1100 W, WELDPLAST S1 149.530 100 V / 1050 W, WELDPLAST S1 151.026 120 V / 1750 W. FUSION 2



144.095 Welding rod de-reeler



Storage case (included with purchase) WELDPLAST S6 116.367 WELDPLAST S4 / FUSION 3 123.173 119.540 WELDPLAST S2 / S2 PVC / S1 / FUSION 2/3C



PLASTFIX lends the weld seam the necessary holding pressure.





# 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		<b>⑤</b>
Protection class II		
AL! - I - AI -		

#### 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 nozzles 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
Temperatu	ire	°C	40 – 620
Air volume	e (20°C)	I/min	160 - 240 (500 at max. temp)
Dynamic p	ressure	Pa	1600 – 3000
Ø Nozzle I	holder	mm	31.5
Emission		dB(A)	67
Size (L × 9	<b>2</b> )	mm	$338 \times 90$ , handle $\varnothing 56$
Weight		kg	1 (without power cord)
Conformity	y mark		C€
Approval n	nark		<b>\$</b> [©
Protection	class II		
Article No	).:		
141.319	TRIAC AT, 120 V / 10	600 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 / 1	600 W, with	CH-plug
142.737	TRIAC AT, 230 V / 1	600 W for so	rew-on nozzles with Euro plug
148.005	TRIAC AT, 220 V / 1	600 W, for p	ush-fit nozzles with KR-plug





Quick welding.



Draw welding with combination nozzle.

# Accessories TRIAC ST / TRIAC AT

	100.303	$\varnothing$ 5 mm, tubular nozzle, push-fit
	105.575	$\emptyset$ 5 × 100 mm, tubular nozzle, push-fit
	106.982	$\emptyset$ 5 × 150 mm, extension nozzle, push-fit
	105.576	tubular nozzle Ø 5 mm, 90° curved
	106.996	Tacking nozzle, push-fit on Ø 5 mm tubular nozzle
9 /	105.431	3 mm speed weld nozzle, with small air-slide, push-fit on Ø 5 mm tubular nozzle
	105.432	4 mm speed weld nozzle, with small air-slide, push-fit on ∅ 5 mm tubular nozzle
	105.433	5 mm speed weld nozzle, with small air-slide, push-fit on ∅ 5 mm tubular nozzle
- //	107.139	$4.5 \times 12$ mm speed weld nozzle for fillet weld, push-fit on $\varnothing$ 5 mm
C	107.137	tubular nozzle 8 mm speed weld nozzle for tape welding, push-fit on Ø 5 mm tubular nozzle
A W		Speed weld nozzle, push-fit on ∅ 5 mm tubular nozzle
® ■	106.992 106.993	5.7 mm, profie A 7 mm, profile B
B	106.989 106.990 106.991	Ø 3 mm Ø 4 mm Ø 5 mm
	156.470	Speed weld nozzle bend $\varnothing$ 5 mm, push-fit on $\varnothing$ 5 mm tubular nozzle

-	105.622	$\varnothing$ 5 mm, tubular nozzle, screw-on
	106.988	Tacking nozzle, screw-on
4	126.552	$\ensuremath{\mathcal{O}}$ 4 mm drawing nozzle, screw-on for fluor plastics
	113.666 113.399 113.876 113.874	Ø 3 mm drawing nozzle with tacking tip, screw-on Ø 4 mm drawing nozzle with tacking tip, screw-on Ø 3 mm drawing nozzle without tacking tip, screw-on Ø 4 mm drawing nozzle without tacking tip, screw-on
A B	113.670 113.877 106.986 106.987	Drawing nozzle triangular-shaped With tacking tip, screw-on 5.7 mm, profile A Without tacking tip, screw-on 5.7 mm, profile A Without tacking tip, screw-on 7 mm, profile B Without tacking tip 7 × 5.5 mm
	107.344	135 mm welding mirror, push-fit
	143.833	Nozzle adapter for screw-on nozzles
9	143.332 156.092 144.134	Protection tube for screw-on nozzles (for TRIAC ST until april 2017) Protection tube for screw-on nozzles (for TRIAC ST from mai 2017) Protection tube for screw-on nozzles (for TRIAC AT)
-	141.375	Connection adapter M14 for $\varnothing$ 21 mm nozzle with plug
	142.717 142.718	Heating element for TRIAC ST / TRIAC AT, 230 V / 1550 W TRIAC ST / TRIAC AT, 120 V / 1550 W

# 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.



Popular for repair work: HOT JET S

#### 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

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
$\varnothing$ 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

## Accessories HOT JET S

1	107.144	Ø 5 mm tubular nozzle, push-fit
	105.567	$\varnothing$ 5 × 150 mm extension nozzle, straight
	105.566	Ø 8 mm tubular nozzle, straight
	106.996	Tacking nozzle, push-fit on $\varnothing$ 5 mm tubular nozzle
1	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 Ø 5 mm tubular nozzle
D	106.991	5 mm speed welding nozzle, push-fit on Ø 5 mm tubular nozzle
	156.470	Speed weld nozzle bend $\varnothing$ 5 mm, push-fit on $\varnothing$ 5 mm tubular nozzle
A B	106.992	5.7 mm, A profilee speed welding nozzle, push-fit
	106.993	7 mm, B profilee speed welding nozzle, push-fit
1	105.431	3 mm speed welding nozzle, with small air-slide, push-fit on $\varnothing$ 5 mm tubular nozzle
	105.432	4 mm speed welding nozzle, with small air-slide, push-fit on $\varnothing$ 5 mm tubular nozzle
D	105.433	5 mm speed welding nozzle, with small air-slide, push-fit on $\varnothing$ 5 mm tubular nozzle
C	107.137	8 mm speed welding nozzle for tape welding, push-fit on Ø 5 mm tubular nozzle





HOT JET S the small companion for filigree work.

	107.139	$4.5\times12$ mm speed welding nozzle for fillet weld, push-fit on $\varnothing$ 5 mm tabular nozzle
	107.305	$15 \times 25$ mm ironing nozzle
Carlot Control	143.831	Nozzle adapter for screw-on nozzles
	114.734	Ski repair nozzle with base plate
S. Marie	100.818	230 V / 435 W heating element
	103.607	120 V / 435 W heating element
2	131.867	$\varnothing$ 5 mm, tubular nozzle, 90° angled, push-fit

Small and handy: The HOT JET S is perfect when welding complicated details.



# WELDING PEN: Slim and flexible.

The WELDING PEN is a hot-air hand tool optimized for draw welding. Due to its slim design and swivelling external air supply it makes hard work easy.



WELDING PEN R combined with angle adapters make welding possible even in very tight spaces.

#### External air hand tool

# WELDING PEN R / WELDING PEN S



- Digital temperature display (WELDING PEN R)
- Connection makes working easier.
- Cooled heating element tube
- Used in combination with ROBUST blower or compressed air

Technical data		
Voltage	V~	230
Power	W	1000
Temperature	°C	20 - 600
Size (L $\times \varnothing$ )	mm	$270 \times 43$ , handle $\varnothing 32$
Weight	kg	1.0 (with 3 m cord / air hose and Y-connection)
Conformity mark		C€
Protection class II		

#### Article No ·

AI LIGIE IN	<b>/</b>	
114.275	WELDING PEN S, 120 V / 600 W, with UK-plug, 2.5 m hose	
114.380	WELDING PEN R, 230 V / 1000 W, with Euro plug, 2.5 m hose	
113.081	WELDING PEN S, 230 V / 1000 W, with Euro plug, 2.5 m hose	
114.926	WELDING PEN R, 230 V / 1000 W, with Euro plug, 6 m hose	
114.274	WELDING PEN S, 230 V / 1000 W, with Euro plug, 6 m hose	
114.927	WELDING PEN R, 230 V / 1000 W, with Euro plug, 9 m hose	
114.273	WELDING PEN S, 230 V / 1000 W, with Euro plug, 9 m hose	

## Accessories WELDING PENR / S

	105.622	$\varnothing$ 5 mm tubular nozzle, 15° screw-on
-	106.988	Tacking nozzle, screw-on
A STATE OF THE PARTY OF THE PAR	113.666 113.399	Ø 3 mm round drawing nozzle with tacking tip, screw-on Ø 4 mm round drawing nozzle, with tacking tip, screw-on
D	113.876 113.874	<ul> <li>Ø 3 mm round drawing nozzle without tacking tip, screw-on</li> <li>Ø 4 mm round drawing nozzle, without tacking tip, screw-on</li> </ul>
A B ₩	113.670 113.877 106.986 106.987	Triangular drawing nozzle with tacking tip, screw-on, 5.7 mm, profile A without tacking tip, screw-on 5.7 mm, profile A without tacking tip, screw-on 7 mm, profile B without tacking tip, screw-on 7 × 5.5 mm
11/10	126.552	$\ensuremath{\mathcal{O}}$ 4 mm drawing nozzle, screw-on for fluor plastics
	127.726 127.727	Angular adapter for screw-on nozzles, screw-on 30° 45°
-	141.375	Connection adapter M14 for $\varnothing$ 21.3 mm nozzle with plug
Control of the Contro	113.412	230 V / 1000 W heating element for WELDING PEN R and WELDING PEN S

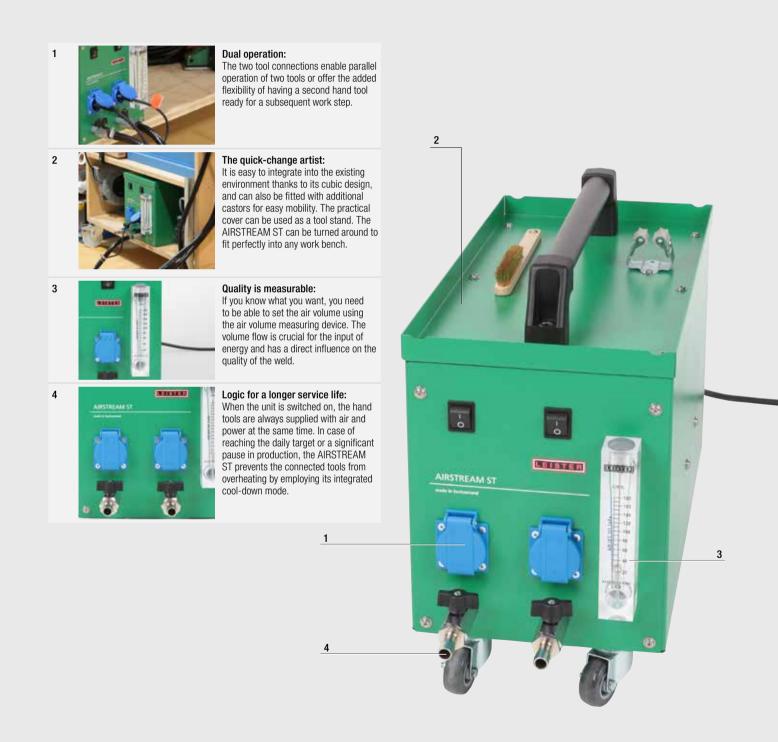
Swiveling air hose for easy working.





# AIRSTREAM ST: The quiet and efficient air supply unit.

With its plug & play functionality, all you need to do is plug in the AIRSTREAM ST for a constant supply of clean, dry air – for welding constructions with the highest cleanliness requirements. Also ideal for use in quiet environments. Need to work with two hand tools in parallel? No problem thanks to the simultaneous power and air supply. The unit includes a hand tool stand, fits into every work bench, and is fitted with castors for easy mobility. A highly practical solution!





AIRSTREAM ST, the quiet air supply unit.

#### Blower

# **AIRSTREAM ST**



- Quiet operating mode
- Cool-Down-Mode
- Low energy consumption
- Two hand tools can be connected
- Compatible mit WELDING PEN, DIODE and LABOR
- Flow meter
- Brushless technology

# **Accessories AIRSTREAM ST**



**159.535** Roller set



159.481 Air hose connection set

Technical Data		
Voltage	V~	230
Power	W	215
Frequency	Hz	50
Air volume	L/min	200 (Total)
Emission	L <sub>pA</sub> (dB)	< 48 (with 3 m hose)
LITHOGICIT	LpA (ab)	< 10 (With 0 111 11000)
Size (L $\times$ B $\times$ H)	mm	$600 \times 250 \times 362$ (with handle)
		,
Size (L $\times$ B $\times$ H)	mm	$600 \times 250 \times 362$ (with handle)
Size (L $\times$ B $\times$ H) Weight	mm	$600 \times 250 \times 362$ (with handle) 24

#### Scope of delivery:

Air supply unit, hose transition pieces, clips, quick guide

#### Article-No.:

158.822 AIRSTREAM ST, 230 V/215 W, EU-plug



Easy parallel operation.



# ROBUST: The powerhouse.

Versatile and operable at high ambient temperatures of up to 60 °C. Despite its small size, the ROBUST is a real powerhouse. This blower can simultaneously supply air for up to three hot-air hand tools.



ROBUST blower, serving as the external air supply for the WELDING PEN.

#### Blower

# **ROBUST**



- High-performance, compact design
- Sound-suppression
- Can be integrated at any position
- Can be used as an external air supply to 1 WELDING PEN R or up to max. 3 DIODE S / PID or max. 3 LABOR S (with 107.281 hose adapter)

Technische Daten				
Frequency	Hz	50		60
Power	W	250		250
Air volume (20 °C)	I/min	1200		1300
Static pressure	kPa	8.0		10.5
Max. ambient temperature	°C	60		60
Max. air inlet temperature	°C	60		60
Noise emission level	dB(A)	62		62
Protection (IEC 60529)		IP 54		IP 54
Outside diameter air inlet	$\varnothing$ mm	38		38
Outside diameter air outlet	$\varnothing$ mm	38		38
Weight	kg	8.0		8.0
Conformity mark				
Protection class I		<b></b>		<b></b>
Artikel-Nr.:				
V II V	50 Hz	1 × 120	1 × 230	3 × 230 / 400
Voltage V~	60 Hz			$3 \times 440 - 480$
Without cord	Article No.:	103.434		103.429
3 m cord / Euro plug	Article No.:		103.432	

### **Accessories ROBUST**

	107.354	Stainless steel filter, push-fit on air intake
	107.281	Ø 38 mm hose connection adapter, 3 output each 14 mm
	113.859	$\varnothing$ 14 mm air hose
0	101.031	$\varnothing$ 14 mm hose clip for air hose

# DIODE PID / S: The powerful pair.

There are two options for high-quality work: The closed-loop DIODE PID provides the perfect welding temperature at all times. The DIODE S easily puts you in control with a manual temperature knob.



Convenient wire welding using the powerful and lightweight DIODE PID.

#### External air hand tool

### DIODE PID / DIODE S



- Operated with MINOR or ROBUST blower or with compressed air
- Digitally controlled and displayed temperatures (DIODE PID)
- Cooled heating element tube
- Suitable for field applications when used in combination with a MINOR blower

#### Hand tool and blower

# **DIODE PID / DIODE S with MINOR**



MINOR blower and DIODE PID with screw-on drawing nozzle.

• Ideal for assembly work

Technical data		
Voltage	V~	120 / 230
Power	W	1600
Temperature	°C	20 - 600
Size (L $\times \varnothing$ )	mm	$265 \times 57$ , handle $\varnothing 40$
Weight	kg	1.15 kg (with 3 m cord / 3 m air hose)
Conformity mark		C€
Protection class II		

#### Article No.:

101.303	DIODE PID, 230 V / 1600 W, push-fit, with Euro plug
101.281	DIODE S, 230 V / 1600 W, push-fit, with Euro plug
101.304	DIODE PID, 230 V / 1600 W, screw-on, with Euro plug
101.282	DIODE S, 230 V / 1600 W, screw-on, with Euro plug
101.293	DIODE S, 120 V/1600 W for push-fit nozzles, with UK-plug
	101.281 101.304 101.282

Additional versions available upon request

Technical data		
Voltage	V~	120 / 230
Power	W	1600
Temperature	°C	20 - 600
Size (L $\times \varnothing$ )	mm	265 $\times$ 57, handle $\varnothing$ 40
Weight	kg	2.5 kg (with 3 m cord / 1.5 m air hose)
Conformity mark		C€
Protection class II		

#### Article No.:

108.880	DIODE PID with MINOR, 230 V / 1700 W, screw-on, 1.5 air hose,	
	Euro-plug	

101.441 DIODE S with MINOR, 230 V / 1700 W, push-fit, 1.5 air hose, Euro-plug

Additional versions available upon request





The MINOR blower as an air suppy for the DIODE PID.

# MINOR: The mobile air supplier.

Don't be deceived by the MINOR's small size and low weight. This blower delivers sufficient air to enable quality work with the DIODE PID / DIODE S or LABOR S.

## Accessories DIODE PID / DIODE S

#### With push-fit nozzle



#### Blower

### **MINOR**



- Lightweight and compact
- Powerful
- Serves as a mobile air supply for the DIODE PID / DIODE S and LABOR S
- Suitable for work on construction sites

Technical data		
Voltage	V~	230
Power	W	100
Air volume (20°C)	I/min	400
Pressure static	Pa	4000 (40 mbar)
Air outlet (external)	mm	14.5
Size $(L \times \varnothing)$	mm	$250 \times 95$ , handle $\varnothing 64$
Weight	kg	1.15 (with 3 m cord)
Conformity mark		C€
Protection class II		

#### Article No.:

108.747 MINOR, 230 V / 100 W, with Euro plug 109.988 MINOR, 120V / 100W, with UK plug

Additional versions available upon request

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Ø 21.3 mm nozzle with plug

# LABOR S: Small and handy.

Developed for laboratory use but also eminently suitable for small welding tasks where access is difficult.



LABOR S, used in combination with MINOR as an external air supply.

#### **External Air Hand tool**

# LABOR S



- Temperature adjustment via rotary knob
- Very small and handy device
- Ideal for draw welding and tacking
- Air supply with ROBUST blower, MINOR (p. 27) or with compressed air
- Ideal for mobile use when coupled with MINOR blower

Technical data		
Voltage	V~	230
Power	W	800 / 900
Temperature	°C	20 - 600
Size (L $\times \varnothing$ )	mm	180, handle Ø 32
Weight	kg	0.15 (without air hose and without cordl)
Conformity mark		C€
Approval mark		
Protection class II		

#### Article No.:

101.716 LABOR S with connection box, 230 V / 800 W

with Euro plug, air hose 3 m

101.754 LABOR with MINOR blower, 230 V / 900 W

 $\label{eq:with Euro plug, air hose 1.5 m} % \begin{center} \begi$ 

### **Accessories LABOR S**

	107.144	Ø 5 mm tubular nozzle, push-fit
A B	106.992 106.993 106.989 106.990 106.991 156.470	Speed weld nozzle, push-fit on ∅ 5 mm tubular nozzle 5.7 mm, profilee A 7 mm, profilee B 3 mm 4 mm 5 mm 5mm bent
-	106.996	Tacking nozzle, push-fit on $\varnothing$ 5 mm tubular nozzle
-	143.831	Nozzle adapter for screw-on nozzles
<b>/</b>	107.146	$\varnothing$ 2 mm soldering nozzle
	107.151	$\varnothing$ 4 mm soldering nozzle
-	107.148	$\varnothing$ 3 × 1.5 mm soldering nozzle, oval
	105.622	$\varnothing$ 5 mm tubular nozzle, screw-on
	106.988	Tacking nozzle, screw-on
100	113.666 113.399	Ø 3 mm round drawing nozzle with tacking tip, screw-on Ø 4 mm round drawing nozzle,
	113.876	with tacking tip, screw-on Ø 3 mm round drawing nozzle
D	113.874	without tacking tip, screw-on  Ø 4 mm round drawing nozzle, without tacking tip, screw-on
A	113.670	Triangular drawing nozzle, with tacking tip, screw-on, 5.7 mm
B	113.877	Without tacking tip, screw-on 5.7 mm, profile A
	106.986	Without tacking tip, screw-on 7 mm, profile B
	106.987	7 × 5.5 mm
4	126.552	4 mm drawing nozzle, screw-on, for fluor plastics
Shame of the state	101.581	230 V / 800 W heating element





Remove the oxide layer from the welding rod.



With the contour scraper, perfect weld seam pre- and post-processing is achieved.

#### Hot-air hand tools

# General accessories

O THE REAL PROPERTY.	106.976	28 mm pressure roller (PTFE)
	106.972	Brass pressure roller with ball bearings
RECORDS .	152.676	Weld seam template
20	157.544	Leister Universal scissors 260 mm with special shaft grinding
	154.259	Scraper blade
	154.026	Contour scraper
	106.997	arnothing 6 mm rotary burr for drilling machine, for car repairs
1	116.798	Brass brush
Samuel	142.647	Brass brush Ø 3 mm
	107.348	Tool rest for TRIAC AT, TRIAC ST, LABOR S



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



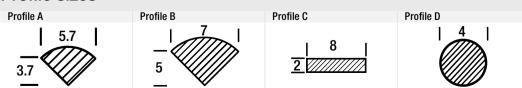


# Welding rods

Article		Profile	Colour		
Welding a	ccessories PE	Pro	3	kg	
104.283	HDPE welding rod	A⋘		3	
104.294	HDPE welding rod	$\mathbf{A} \bigcirc\!$		3	
104.284	HDPE welding rod	$_{B} \bigcirc\!\!\!\!\bigcirc$		5	
104.299	HDPE welding rod	$_{B} \bigcirc\!\!\!\!\!\bigcirc$		5	
106.650	HDPE welding band	C ===		1	
104.300	LDPE welding rod	$\mathbf{A} \bigcirc\!$		3	
161.612	HDPE welding rod	D 🔘		2	
116.918	HDPE welding rod	D 🔘		2	
Welding accessories PP					
104.287	PP welding rod	A⋘		3	
104.301	PP welding rod	A⋘		3	
106.642	PPs welding rod, flame resistant	$\mathbf{A} \bigcirc\!$		3	
104.288	PP welding rod	$_{B} \bigcirc\!\!\!\!\! \bigcirc$		5	
126.356	PP welding band	C ===		2	
161.611	PP welding rod	D 🔘		2	
Welding a	ccessories PVC				
104.296	PVC-U welding rod	$\mathbf{A} \bigcirc\!\!\!\!\! \bigcirc$		3	
104.278	PVC-U welding rod	$\mathbf{A} \bigcirc\!$		3	
106.641	PVC-U welding rod	A⋘		3	
104.280	PVC-U welding rod	$_{\rm B}$		5	
104.279	PVC-U welding rod	$_{\rm B}$		5	
109.925	PVC-U welding rod	D 🔘		4	
104.302	PVC-P welding rod (soft)	A⋘		3	
Welding a	Welding accessories ABS				
104.295	ABS welding rod	A⋘		3	
113.587	ABS welding rod	A⋘		3	
107.027	ABS welding band	C ===		1	

Weldings	occessories div.	Profile	Colour	kg
	PA welding rod	_ △		3
	PC welding rod	A CO		3
	PC welding rod / ABS / ALPHA (Honda)	A CO		3
	PUR welding rod	A		3
106.654	Xenoy welding band	C		2
104.304	PVDF welding rod	A	$\overline{\Box}$	3
	POM welding rod	A		3
112.185	PC/PBTX Xenoy welding rod	A		3
Test bund	lles			
107.036	6× HDPE, 6× PP, 6× PA, 6× PC, 6× ABS, 6× PCA 6× PC / PBTP / Xenoy	ABS / AF a₩	'LHA H	onda
107.037	Test bundles standard each consisting of profile A pieces of 37 cm single marked 5× PVC-U, 5× PVC-P, 5× PP, 5× ABS, 5× HDPE, 3× POM, 3× LDPE, 3× PC / ABS / ALPHA Honda, 3× PC / PBTP / Xenoy		3× PA,	

# **Profile sizes**



Dimensions in mm



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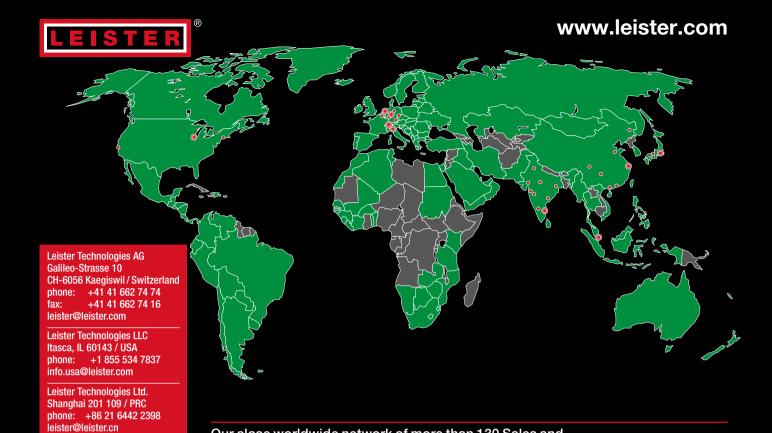
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