

Welcome

Product Management Roland Beeler

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Roofing





Scope Roofing systems



Overview



mechanically attached



ballasted with plants)



fully adhered



solar



ballasted



decor/pattern



PVC flat roof mechanically attached



TPO flat roof mechanically attached



PVC flat roof mechanically attached



PVC vegetated green roof (ballasted with plants)





PVC flat roof gravel ballasted



Bitumen flat roof mechanically attached



Modified bitumen field base membrane (vapor barrier), mechanically attached and overlap welded



Modified bitumen roof, single ply, mechanically attached.





To protect the roofing membrane from uplift forces it needs to be fastened or ballasted. Following roofing systems are worldwide used:

Flat Roof (single ply)

- 1. mechanically attached
- 2. fully adhered
- 3. ballasted

Steep Roof (pitched roof)

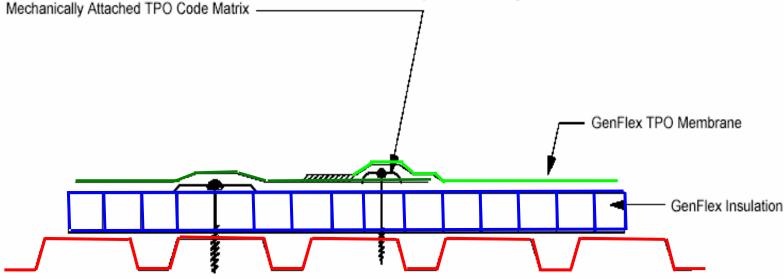
1. Single ply consolidated



mechanically attached:

- Secure against wind suction
- Fast laying
- Economy maintenance

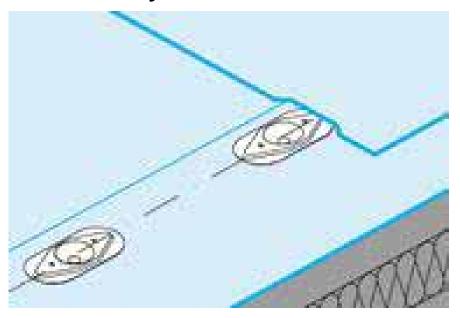
- Ligth roof
- Long-life cycle
- GenFlex Bar Anchor or Seam Plate secured with GenFlex Fasteners spaced according to the Mechanically Attached TPO Code Matrix



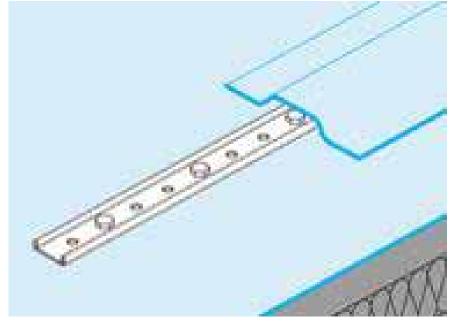
Position insulation and membrane sheets to enable securment into the top flutes on steel decks to ensure positive attachment and to reduce fastener movement. Insulation should be installed with board ends resting on the flute tops.



mechanically attached selective

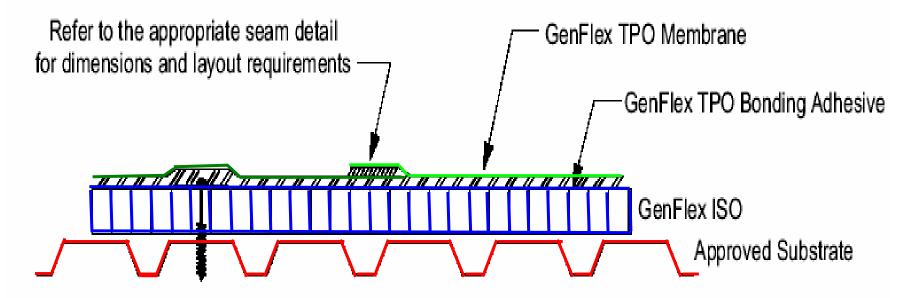


mechanically attached with bar





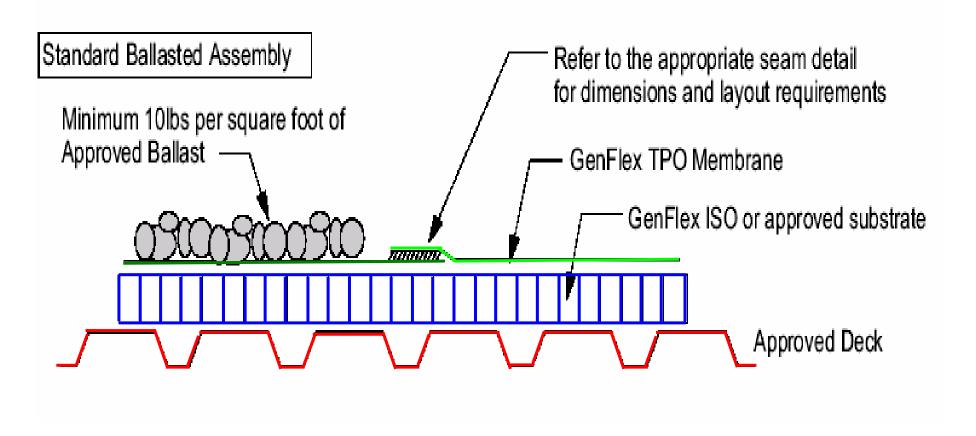
2. Fully adhered



Position insulation to enable securment into the top flutes on steel decks to ensure positive attachment and to reduce fastener movement. Insulation should be installed with board ends resting on the top flutes.



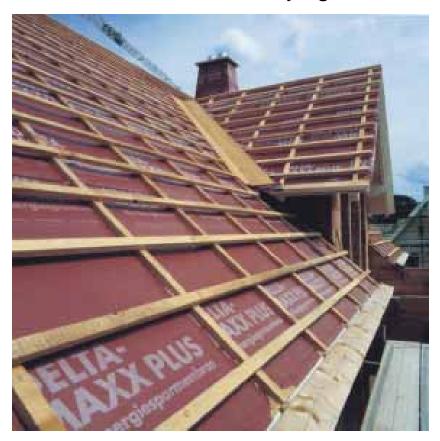
3. Ballasted





Steep Roof (pitched roof) scope

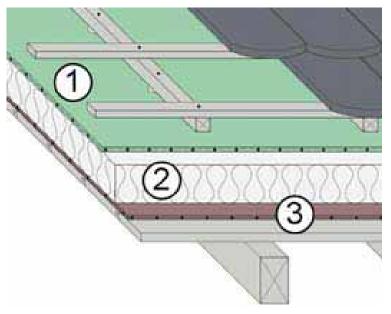
TPO consolidated loose laying



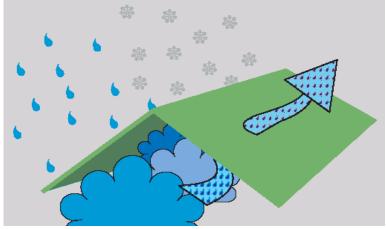
TPO consolidated residential



Steep Roof (pitched roof) system



- 1 Consolidated membrane for welding
- 2 Insulation
- 3 vapor barrier



Diffusion open consolidated membrane



Roofing Materials

PVC (Polyvinylchloride)

TPO (thermoplastic Polyolefin)

FPO (flexible Polyolefin)

EPDM (Ethylene-Propylene-Dien-Terpolymere)

Modified Bitumen (asphalt modified with atactic polyolefin

reinforced with a non-woven polyester mat)

ECB (Ethylene Copolymer Bitumen)

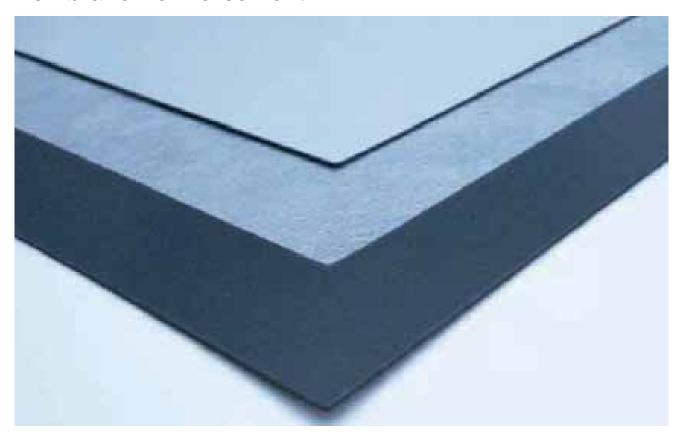
CSPE (Hypalon/chlorosulfonated polyethylene & synthetic

rubber)



Roofing Materials

Membrane Reinforcement

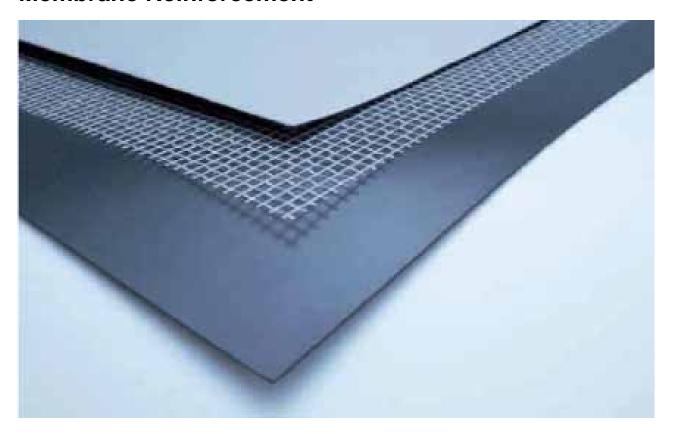


Roofing membranes with glass-fleece armouring are used with loosely laid flat roofs which are ballasted with gravel or plants.



Roofing Materials

Membrane Reinforcement



Roofing membranes with synthetic armouring (polyester) are used for mechanically fixed flat roofs. The material guarantees a high mechanical, biaxial stability at the fastening screws.

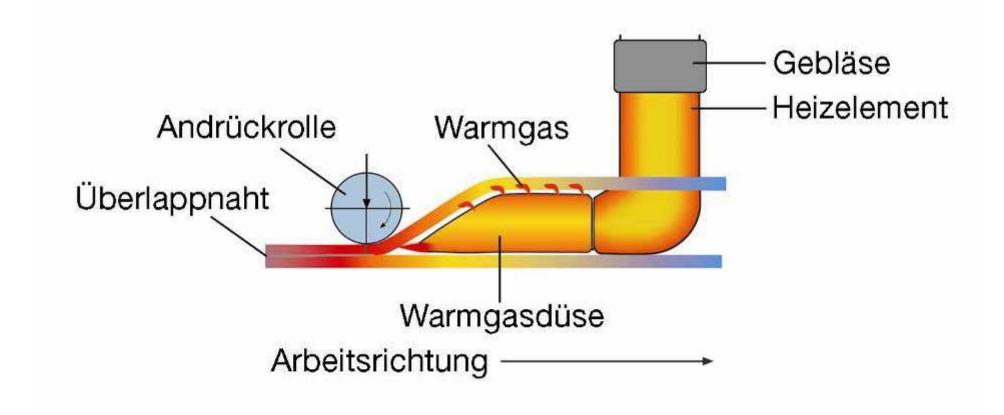




Welding Procedure



Welding procedure





Welding procedure

Following welding procedures are possible

- Extrusion welding
- Hot wedge welding (heating element)
- Hot air welding

All welding procedures require an accordance of the following parameters:

- Temperature
- Pressure
- Speed

Joining areas must be dry and free of impurity. For T-joints the front surface of the upper membrane must be held slanted.



Welding procedure under construction site conditions

Condition of surface

- Solid underground with smooth surface without bumps (clean laying)
- Building sites should be free of sharp items, roots and stones.

Environment Conditions / Weather Conditions / Rain

• In case of rain it must not be welded without any special safety measures.

Air Temperature

 Welding procedures have to be stopped at temperatures under +5°C in order to prevent high thermal strains of the roofing membrane.



Welding procedure under construction site conditions

Air Humidity

 High air humidity might cause perspiration water on the welding surface which is unfavourable for the seam strength.

Wind

• Due to strong wind the required welding temperature might not be reached. To solve this problem, the welding temperature has to be increased up to 20–30°C. If the wind is too strong, the welding area should be protected, or the welding process has to be stopped.

Sunshine

Sunshine causes strong heating up, especially of black roofing membranes. This causes an increased thermal expansion of the membrane and results in wrinkles. The welding process becomes more difficult, and when cooling down abnormal strain in the seam area occurs.





Welding machines



Roofing machines overview



Plastic single ply











Bitumen

Criteria	VARIMAT V2	UNIROOF E	DRIAC DRIVE PID/ Guiding help	X84	COMET consolidated	BITUMAT B2
Main application	•Main welding seam	Complement to VARIMAT V2 Small roofs	•With guiding help welding in the vertical	Consolidated membranesConstricted for main welding seams	•For assembling	•Main welding seams
Roofing construction	 Flat/Slope roofs up to 30 grad Mechanical fixed Underground hard 	Flat/Slope roofs up to 30 gradMechanical fixedUnderground hard	Flat/Slope roofs up to 30 gradMechanical fixedUnderground hard	 Slope roofs, constricted for flat roofs Loose lay Underground flexible 	Flat roofs indoor applicationLoose layUnderground flexible	Flat/Slope roofs upMechanical fixedUnderground hard
Detail work	Constricted possible	 On parapet Roof edge, Coated roofs Narrow circumstances Slope roofs 	Narrow circumstancesBow weldingAt/on parapetsSlope roofs	*Slope roofs *Consolidated membranes	•For assembly membranes	•Constricted possible
Parapet distance to weld	110mm	*190mm, for coated roofs no distance necessary	40mm	135mm	220mm	120mm
Electronic (close loop system)	yes	yes	Blower close loop controlled	No	No	No
Brush less blower	Yes	No	No	No	No	No
Drive speed Welding speed depended on material	0.7-12m 4-7m	1-5m 2-3m	0.5-3m 1.5-3m	0.5-3.5m 1.5-2.5m	0.8-5m 3-4m	0.8-12m 3-7m
Weight	35kg	12kg	4kg	6kg	7kg	42kg





VARIMAT V2



Agenda

- History
- Competitors
- Description/ Concept
- Compare VARIMAT V/V2
- How to operate
- Benefits/ USP



Competitors









Description/ Concept

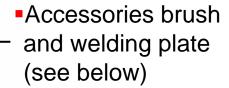
Ergonomic steering bar

•Machine easy to track

Powerful maintenance free brush less blower

Excellent welding process due speed nozzle

Higher welding speed



- Graphical display
- e-Drive
- Pre set welding profiles
- Improved electronic protection
- Easy operation
- New Design



Technical data sheet

Voltage	200V/ 230 / 400V	200V/230V/ 400V
Power consumption	W 4600 / W 5700	4600 / 5700
Temperature	°C 100-620	°F 212 -1148
Speed	m/Min.0.7-12	ft/min 2.3-39.4
Air flow range	% 50-100	%50-100
Speed nozzle width	mm 40	inch 25x17x13
Weight	kg 35	lbs 77
Engineering standards	s+, CCA, CE	

4 Versions

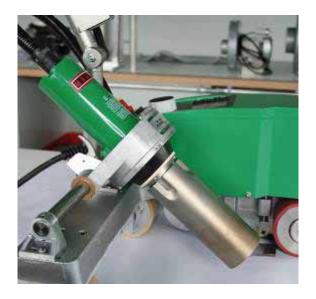
VARIMAT V2, 400V with CEE plug	137.821
VARIMAT V2, 230V with Schuko plug	138.108
VARIMAT V2, 230V USA with out plug	138.982
VARIMAT V2, 200V Japan plug	139.734



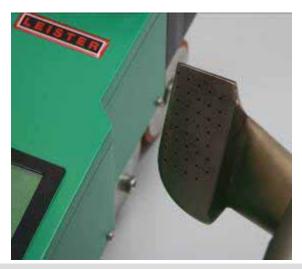
Brush less blower/ Nozzle

Maintenance free blower

- Brush less blower with more air pressure and air volume for faster welding and process security
- Maintenance free blower



- Improved speed nozzle
- Attention speed nozzle order only with V2 possible
- Patent pending



More speed and reliability

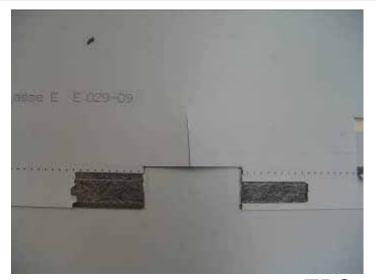
More value

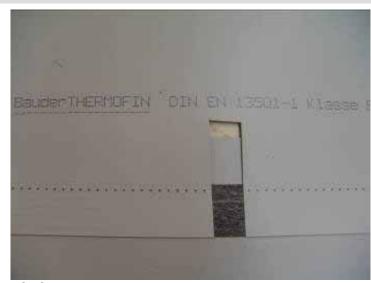
- •More then 100% increased welding speed
- Improved electronic due to high performance diode
- Pre set welding profiles
- Acoustical warning in case of errors
- ■Cool down modus, at 60° 2 minute rundown time
- Patent pending for display and nozzle
- Unexpected prevention modus
- Energy safety modus with standby The green tool!



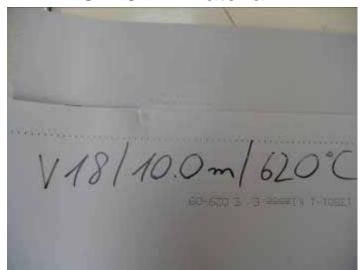


Application tested





TPO 1.6mm material





Ergonomically steering bar

More ergonomic at the working place

- Continuously variable steering bar
- Shift of steering bar
- Steering bar to fold in into tool case
- Pivoted steering bar for forwards backwards









Ergonomically handle

More ergonomic at the working place

Handle of for tool caring with out a case

Easy transportation with crane hook





Tool case

More ergonomic at the working place

Step 1



Step 2



Step 3



- Robust and resistant
- Flexible handling because of wood
- Light 21.50 kg
- Easy to transport







Design

You will sell it better

- Modern design
- New labeling concept

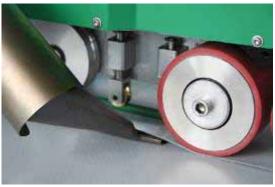




High Process reliability

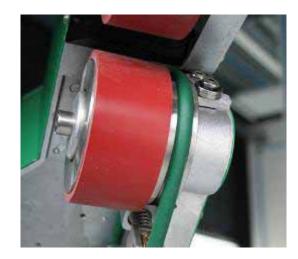
Tight roof

High process reliability with air dam





Patented pendulum pressure roll for uneven welding



Brush

Accessories included

- Handy brush for nozzle cleaning
- Better welding process reliability

Welding plate for better quality when start of welding





Accessories

- Handy brush for nozzle cleaning
- Better welding process reliability



Welding plate for better quality when start of welding





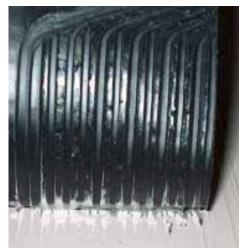
Accessories

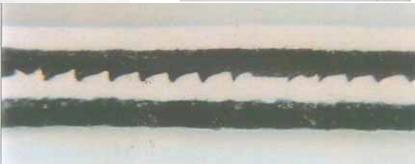


Rough of TPO material outcome better thermoplastic welding

♦ Advantage no solvent necessary







Slope roofs up to 30 grade





Basic seams





End of the roof





Close to the wall





Comparison V2/V

Criteria	VARIMAT V2	VARIMAT V
Speed drive Speed welding	0.7-12m 0.7-10m	0.5-5m 0.5-4m
Air flow	25% more	
Blower	Brushless motor	Brush motor
Blower characteristics	New characteristics (see detail)	No characteristics
Operation	e-Drive push turn button	Button, double press operation required
Pre set welding profiles	Yes	No
Display	Graphical display	Character display
Electronic of MOSFET	Better protection due diode 1200V	Problems with ZPM and TRN due Diode 600V
Electronic	AZM is on TRN integrated one print	AZM and TRN separately
Ergonomic	Steering bar free adjustable less pressure necessary	Steering bar not free adjustable

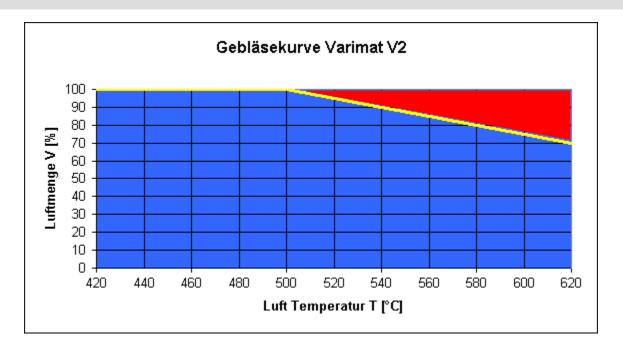


Comparison V2/V

Criteria	VARIMAT V2	VARIMAT V
Standby	Yes, 5-120Min	No
Cool down modus	Yes, at 60° 2 minute rundown time	No
Acoustical warning	Yes, in case of errors	No
Crane hook	Yes	No
Speed nozzle	Adapted nozzle concept	Existing nozzle
Leister storage box	New mobile storage box	No
Accessories	Hand brush, solder plate	No
Cable management	0.5m cable length	5m cable length
Design	New modern design	Existing design
Service interval	2000 h till maintenance servicing	800 h till carbon brush change



Blower characteristic



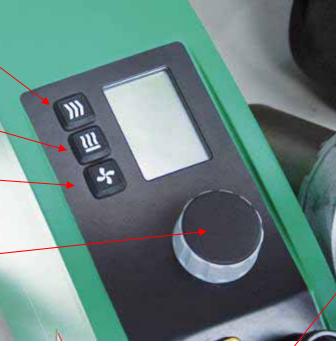
- •Adjust of blower characteristic combination of machine and human
- Yellow line, programmed curve
- •Red area ** appears on air flow display, Temperature will be not achieved
- ■Blue area Manually operation



How to operate

Graphical display patent pending

- Speed selection and Program-button
- Heat selection button
- Air volume selection button
- Elegant push-dial for adjustment and selection
- Self-explanatory user interface



- Press double button Speed/Heat/ and main switch to store a customized welding profile
- Attention: Welding profile programs still require test welding runs in advance!
- Press double button Heat/Air and main switch to display
 process values in percentage

- Speed selection pressed for 3 seconds displays the daily meter reading
- Speed selection pressed and select push dial for motor drive



- Heat selection pressed for 3 seconds displays voltage
- Air volume reading only displayed if process value not 100%



Key for success

•We have to convince material manufacturer for new dimension in welding speed













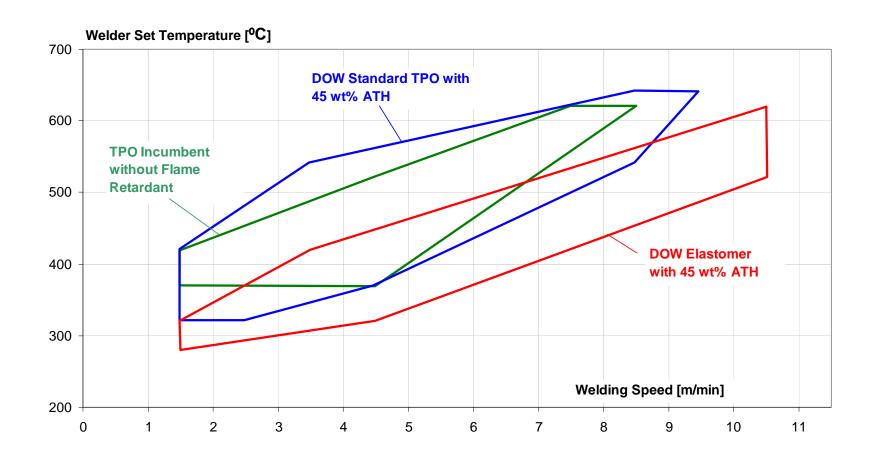








Welding windows





Calculation of faster welding

Safe money with more speed

Calculation example:

24000m2 TPO membranes. Labour coast 75CHF/h

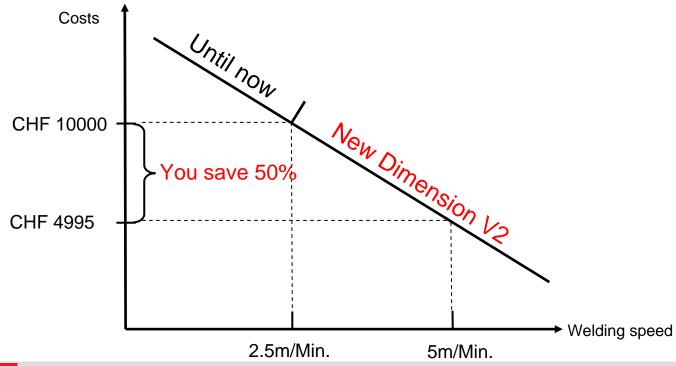
Existing roof machine speed 2.5m/Min.

24000m2 : 1.2m sheet wide= 20000m to weld : 2.5m welding speed= 8000 Min :60Min. = 133.3Std. x 75CHF= **10000 CHF**

New VARIMAT V2 speed 5.0m/Min.

24000m2 : 1.2m sheet wide= 20000m to weld : 5.0m welding speed= 4000 Min. :60Min. = 66.6Std. x

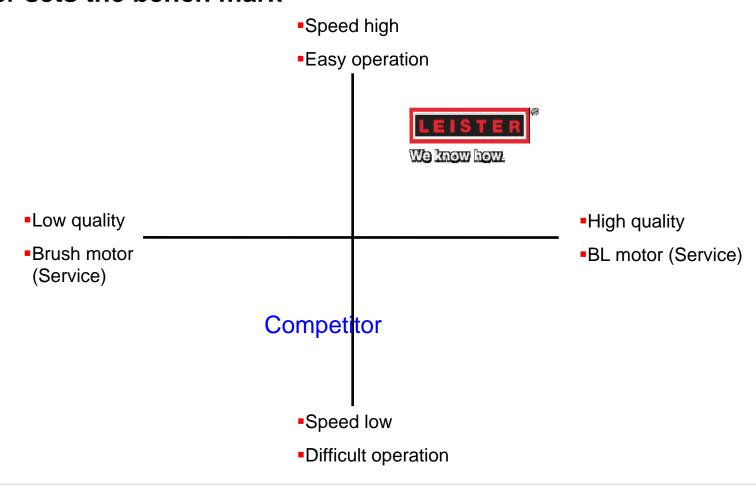
75CHF= **4995 CHF You save 5005 or 50**%





Positioning

- One step ahead the others
- Leister sets the bench mark





Sales strategy

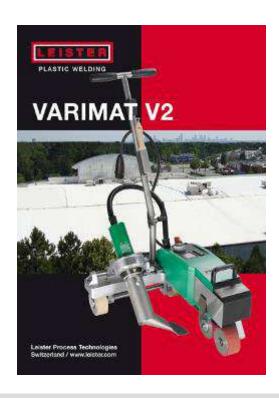
- Contact material manufacturer
- Show profit of faster welding
- Extend of market position
- Every contractor worldwide needs V2 (Switzerland 1600 contractors)
- •New sales arguments, BL motor, service, ergonomic, operation
- Better machine with same price

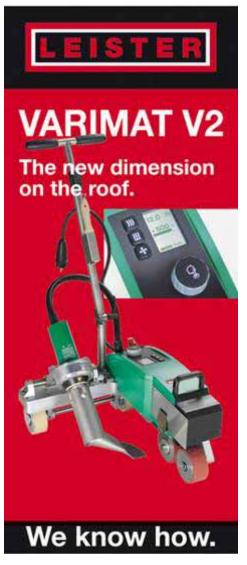




Marketing Instruments

- Starter kit
- Secondary Roll up, Poster, Application DVD
- Advertisement template
- PR text
- Flyer
- Roofing brochure
- PowerPoint Presentation







Benefits/USP

Safe costs

- Higher welding speed up to 10m
- Maintenance free blower
- Better electronic protection

Ergonomic

Free adjustable steering bar

Safety

Acoustical warning



Easy operation

- e-Drive
- Graphical Display



VARIMAT V2 "best VARIMAT ever"







UNIROOF E



Light and compact for your detail work

Overlap welding for plastic membranes off PVC, TPO, ECB, EPDM and CSPE





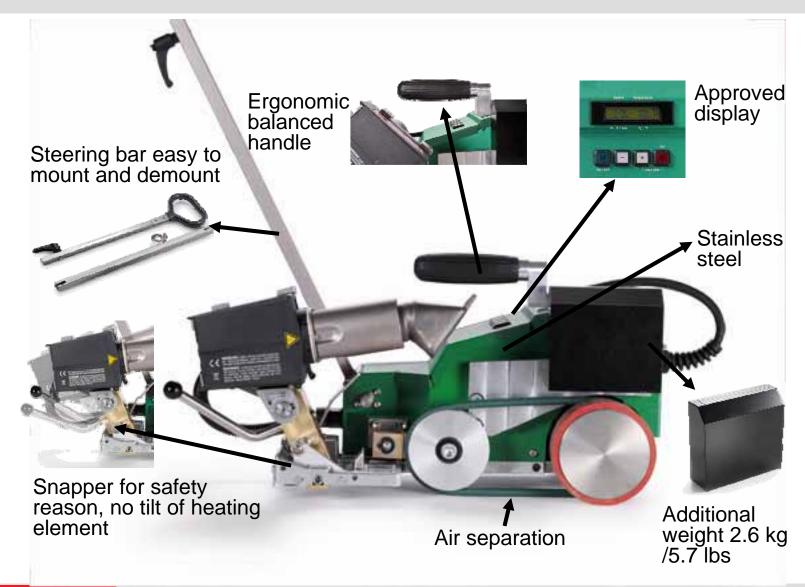
Development of UNIROOF E

More drive strength with controlled electronic of Uniplan Wedge. Aligned for roof requirement.





Tool description





Technical data

Amp/ Voltage A / V~ 10 / 230

Frequency Hz 50 / 60

Power consumption W 2300

Temperature °C / °F 20-600 / 68-1112

Air flow I/min. max. 300

Speed m/min./ ft/min 1.0-5.0 / 3.3-16.4

Size (L x W x H) mm / inch 420x270x210 / 16.5x10.6x8.3

Weight kg / lbs 12.8 / 28.2

Welding seam widthmm / inch 30 / 1.2

Protection class I

Marking of conformity C

Approval mark SEV/ Electrosuisse

Certification scheme CCA



Accessories



Grip nozzle TPO 125.685

- Welding with out preparation
- Fast welding process



Additional weight 107.067

- Tool less mounting
- Improved welding process
- 2.9 kg/6.4lbs



Lifting device 115.057

Easy shifting to next welding seam







One storage case, one kit

Kit contents part number 134.447:

- Tool case
- UNIROOF E
- Steering bar
- Handle
- Weight

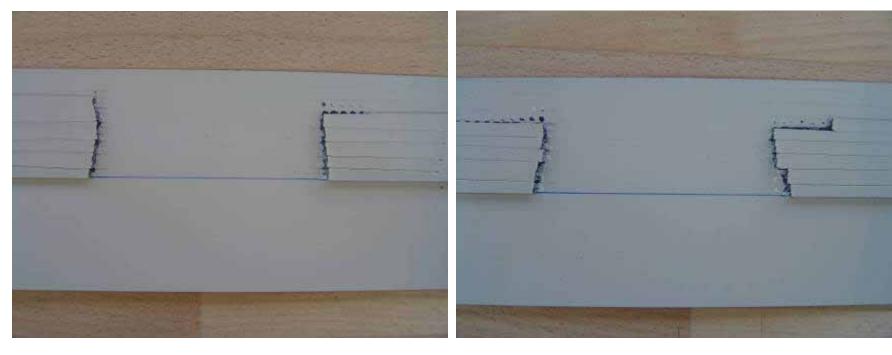
DVD application/ operation manual





Application Engineering

Sarnafil FPO plastic membranes TG 66-16

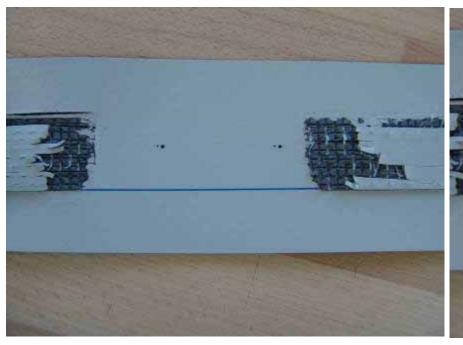


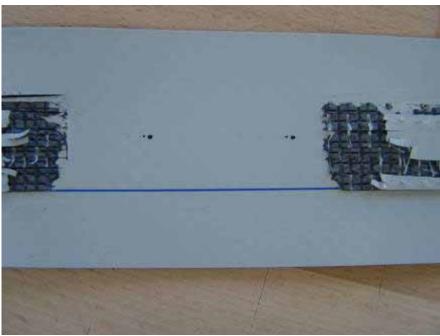
- UNIROOF E 2.5m/min 8 ft/min with solvent prep
- VARIMAT V2 Speed with standard Nozzle 6m/min, 20 ft/min



Application Engineering

Sarnafil plastic membranes PVC S327-15EL





- UNIROOF E 2.0m/min 6.5 ft/min
- VARIMAT V2 Speed with standard Nozzle 6m/min 20 ft/min

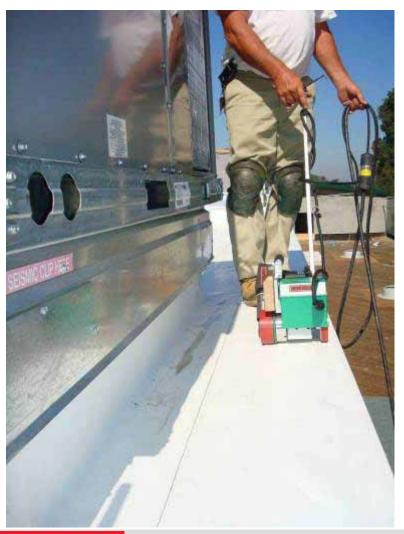


- Coated metal roofs
- Narrow circumstances
- Parapet
- Steep slope roofs up to 30°
- Bend welding
- Edge close zones
- Clad metal
- Terraces
- Renovation
- Repairs
- Small roofs
- Summer cottages





Narrow circumstances







Coated metal roofs on edge close zones

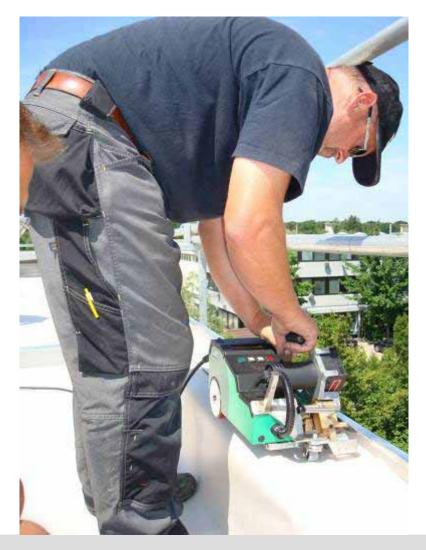






Parapet





Parapet







Steep slope roofs





Application

Bend welding





Get more

Handling

- Weight only 13kg /28 lbs
- 10A/230V machine
- Compact size
- Complete tool set
- Ergonomic handling
- Aligned for roof requirement

Techniques

- Closed loop controller
- Approved operating display
- Stable voltage controller

Reliability

- Prevention of unexpected start up
- Snapper for heating element
- Approved machine with field tests

Power

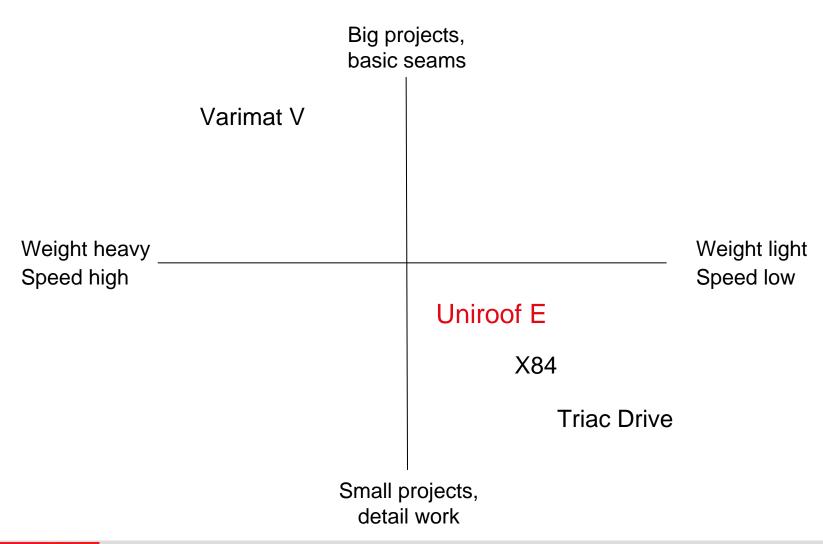
- Strength driving motor
- Slope roofs up to 30°







Positioning machines





UNIROOF E to complement your roof for plastic membranes

Everywhere there you cant take the Varimat V, take the Uniroof E.





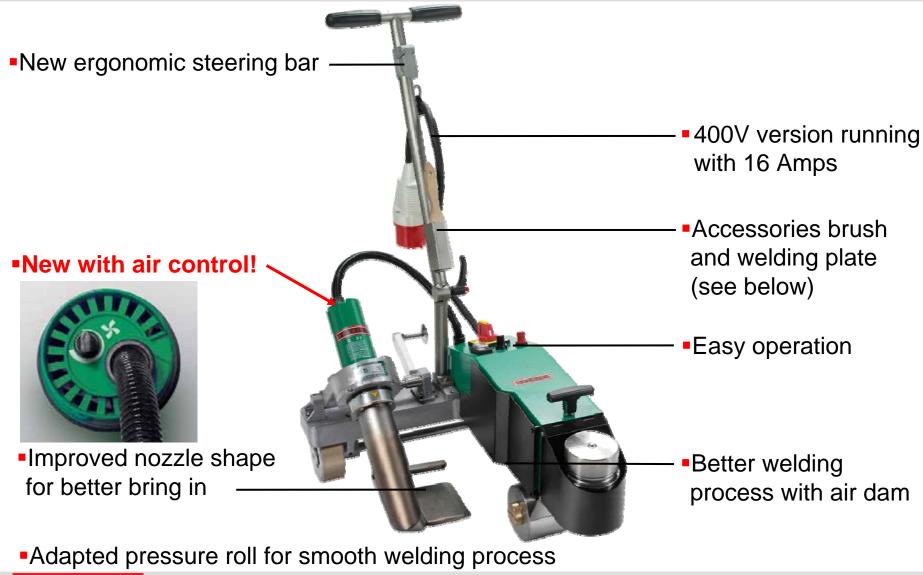


BITUMAT B2



BITUMAT B2

Aligned BITUMAT also for thin Bitumen sheets





What is new?

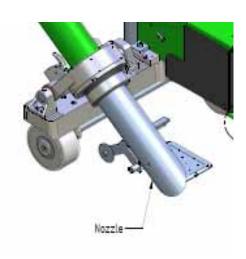
- •Adapted for thin bitumen membranes
- Better nozzle wedge
- •Green air dam
- Guiding bar
- 400V Version with16A
- Lift up device as accessories





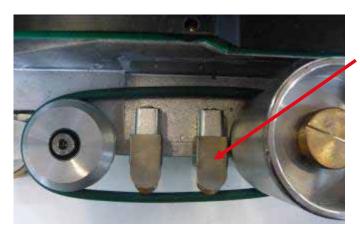
Differences to existing BITUMAT

Nozzle



- New wedge nozzle shape for better bring in
- No nozzle horns any more

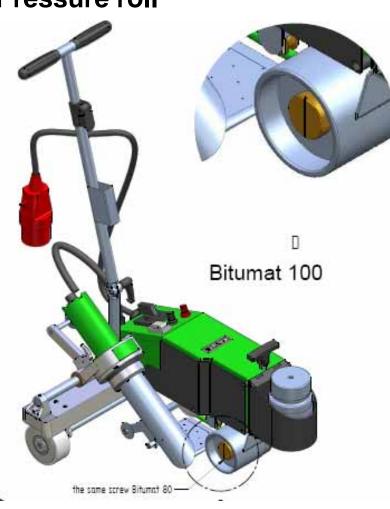
Air dam belt



- •Air dam belt for excellent welding process
- Safety cover against Bitumen splashes

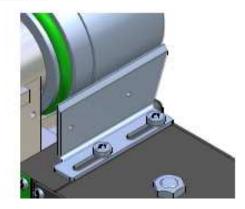
Differences to existing BITUMAT

Pressure roll



One screw for 100mm and 80mm pressure roll

Bitumat 75



- Adapted pressure roll
- Pressure roll is driven only on the welding seam
- Adjustment of wiper



Weigth and pressure roll in one

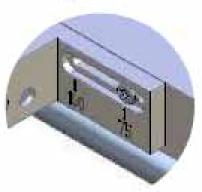




Differences to existing BITUMAT

Adjustments





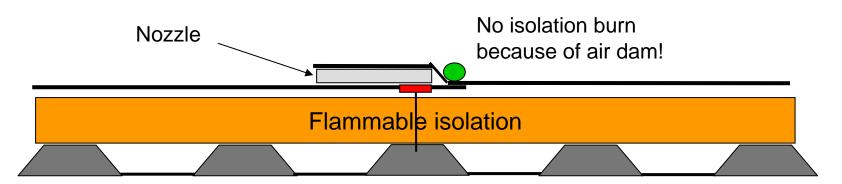
Guide for adjust 100mm and 75mm nozzle position





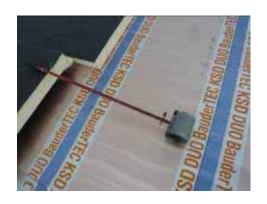
 Adjustable blowing arrester for 100mm and 75mm nozzle position





Calculation for 2000m2 surface one layer:

- •Building owner is saving money because of cheaper insulation 1.8Euro x 2000m2 = 3600 Euro
- •Material manufacturer earn more many with insulation plate than with membranes
- •For torching you need two people (pressure roll)







Which one is better?

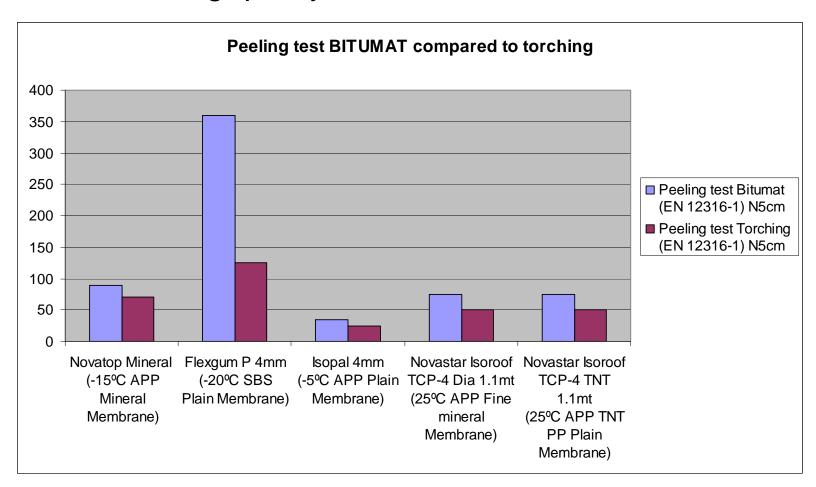
Torch open flame



BITUMAT



Better welding quality











Main field of application

- Cold roofs, open flame is forbidden
- 2. Single ply systems
- 3. Two layer systems, for the first layer EGV 3mm
- 4. Wooden constructions





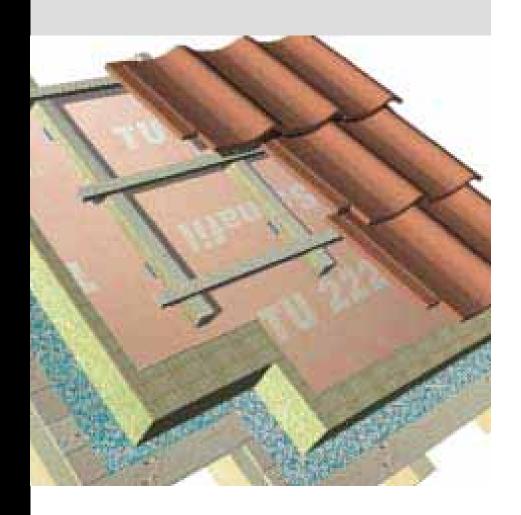
- Flameless modified bitumen welding
- Perfect alternative to the hazard of propane burners
- Easy to operate (one operator, safes money)
- Clean welding process
- Consistent welding results
- Higher peeling force
- High welding speed
- •400V version running with 16 Amps





LEISTER

X 84



Light and handy



The X 84 is used in Central Europe on pitched roofs and flat roofs (loosely laid).

FEATURES:

- Small, light and compact
- Applicable independent of surface
- Constant welding pressure
- Controlled welding speed
- Choice of two levels for airflow



Application

Loosely laid flat roofs



Loosely laid pitched roofs





TRIAC DRIVE PID



Universal applicable

TRIAC DRIVE PID



The X 84 is used in Central Europe on pitched roofs and flat roofs (loosely laid).

FEATURES:

- Small, light and compact
- Applicable independent of surface
- Constant welding pressure
- Controlled welding speed
- Choice of two levels for airflow



Application range

On the edge



Channel





Application range

Bow welding



Channel



Application range

TRIAC DRIVE close to the parapet

TRIAC DRIVE on the parapet







TRIAC DRIVE PID with guide help for stretched connections

TRIAC PID controlled hotair tool





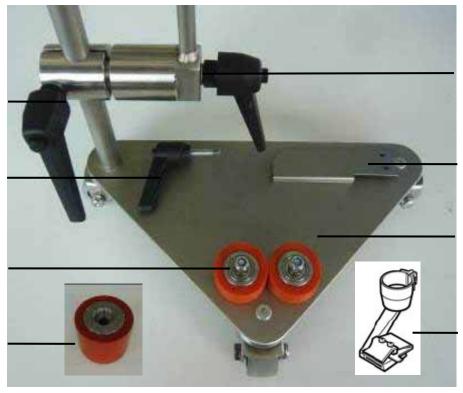
Guiding help set

steplessly height adjustable

Catcher for TRIAC fixing

Silicon roller 12mm for better horizontal hold

Silicon roller 30mm equalizes bruises



Inclination steplessly adjustable

Guide plate for nozzle with visual guidance

Leister quality chrome steel base plate

Overlap welding nozzle inside 30mm

Article number set 138.549



Technical data

•Height adjustability:
13-36 cm stepless

•Construction: chrome steel, base plate with

rollers

•Welding angle: Inclination steplessly adjustable

•Weight: 1.6 kg





Applications

Stretched connections parapet







Applications

Better guidance on flat area







Applications

TRIAC DRIVE along fascia

•TRIAC DRIVE on fascia







Get more

- Ergonomic welding
- Multifunctional
- Handy and light
- Height adjustable
- Replacement for PERIMAT
- •Re-launch of TRIAC DRIVE PID





Accessories

115.283

115.279

115.281

115.699

115.701

115.703



115.278

115.280

115.698

115.700

115.702



Überlappschweissdüse 12 mm, mit Grip, innen, aufschiebbar Überlappschweissdüse 30 mm, mit Grip, innen, aufschiebbar Überlappschweissdüse 38 mm, mit Grip, innen, aufschiebbar Überlappschweissdüse 12 mm, ohne Grip, innen, aufschiebbar Überlappschweissdüse 30 mm, ohne Grip, innen, aufschiebbar Überlappschweissdüse 38 mm, ohne Grip, innen, aufschiebbar



Überlappschweissdüse 12 mm, mit Grip, aussen, aufschiebbar Überlappschweissdüse 30 mm, mit Grip, aussen, aufschiebbar Überlappschweissdüse 38 mm, mit Grip, aussen, aufschiebbar Überlappschweissdüse 12 mm, ohne Grip, aussen, aufschiebbar Überlappschweissdüse 30 mm, ohne Grip, aussen, aufschiebbar Überlappschweissdüse 38 mm, ohne Grip, aussen, aufschiebbar



Accessories

115.274 115.176 115.186	Andrückrolle 12 mm Andrückrolle 30 mm Andrückrolle 38 mm > TRIAC DRIVE PID
115.275	Stützträger zweifach > TRIAC DRIVE PID
115.276	Stützträger einfach > TRIAC DRIVE PID
115.284	Handgriff > TRIAC DRIVE PID



Accessories seam probe tester



- Easy test of welding seam
- Ergonomic
- Lets talk about Leister and not disscount
- •Art. 138.314







COMET for consolidated roofs



COMET consolidated

Aligned for assembling





COMET consolidated

Technical data

- •Weld of consolidated roofing membranes till 0.8mm
 - •o.E Sarnafil TU 222 und SUCOFLEX CU/V0.8.
- Suggested welding settings 230°C, 4/min
- Suggested overlap 6cm
- Wedge 30mm width / two heating cartridge
- Welding speed 7m/Min





Applications

Welding of consolidated roofing membranes for assembling







Sales argument

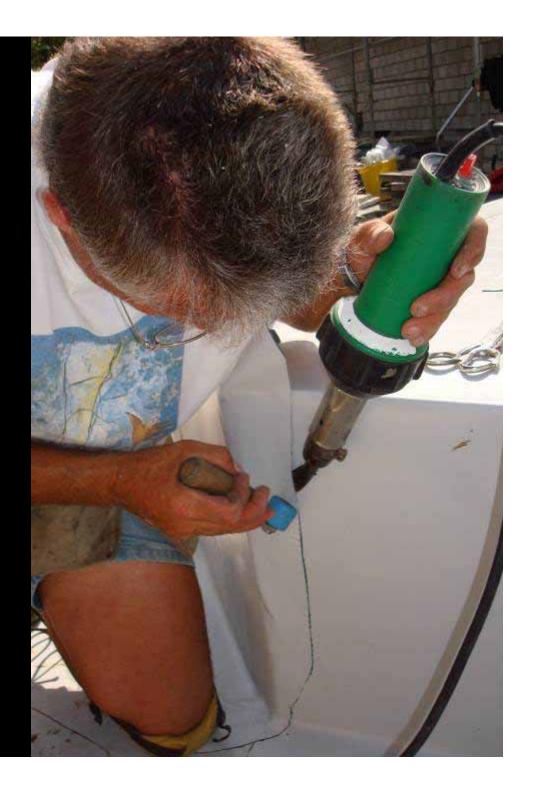
- Terminated overlap weld with out left over overlap
- Guiding help for automatic material entering
- Because of heating wedge indoor welding possible
- Automatic device guiding
- •Aligned for assembling







Hand tools



TRIAC PID



With stepless temperature control and electronic monitoring, the Triac PID is the preferred hand tool for works with high quality.

FEATURES:

- Reproducible results thanks to digital display of set and actual temperature
- Constant temperature independent of voltage fluctuations and ambient temperature
- Adaptor tube with heat protection
- Electronic heating element protection
- Motor shut-off at minimal carbon level
- Suitable for continuous operation
- Multiple replacement of carbon brushes possible



TRIAC S



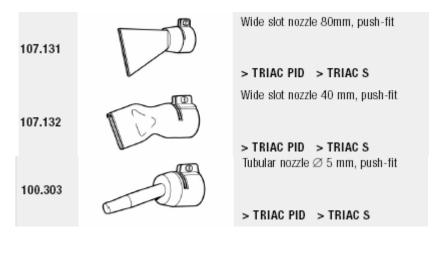
The most sold hand tool.

FEATURES:

- Adaptor tube with heat protection
- Electronic heating element protection
- Motor shut-off at minimal carbon level
- Multiple replacement of carbon brushes possible
- Suitable for continuous operation

Accessories for TRIAC

107.123	Wide slot nozzle 20 mm, push-fit > TRIAC PID > TRIAC S
107.124	Angled nozzle 20 mm, 90°, push-fit > TRIAC PID > TRIAC S
107.125	Angled nozzle 20 mm, 60°, push-fit > TRIAC PID > TRIAC S
107.129	Wide slot nozzle 60 mm, push-fit > TRIAC PID > TRIAC S
107.130	Wide slot nozzle 40 mm, 60° bent, push-fit > TRIAC PID > TRIAC S





HOT JET S



The most compact hand tool from Leister: HOT JET S' low weight of only 600 grams incl. cord and slim handle, ensures fatigue-free working.

FEATURES:

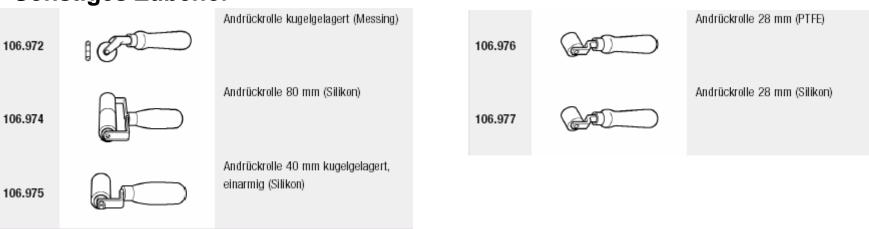
- Worldwide the smallest hand tool
- Electronic steplessly controlled temperature
- Electronic steplessly controlled airflow
- •Electronic heating element protection
- Low noise
- Integrated flexible tool stand



Zubehör HOT JET S

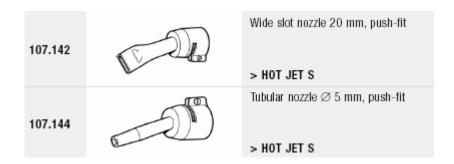


Sonstiges Zubehör



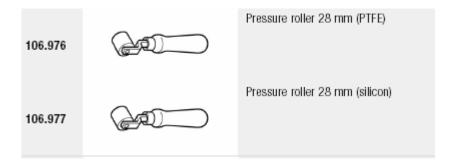


Accessories for HOT JET S



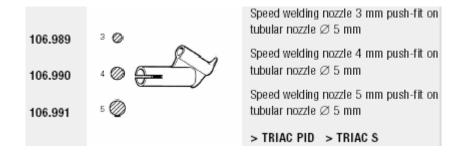
Other Accessories

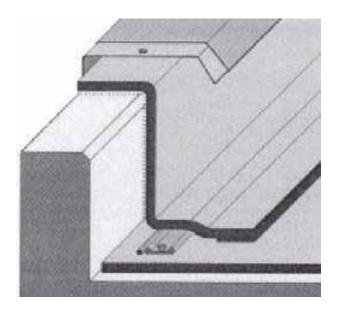
106.972	Pressure roller with ball bearings (brass)
106.974	Pressure roller 80 mm (silicon)
106.975	One-arm pressure roller 40 mm, with ball bearings (silicon)

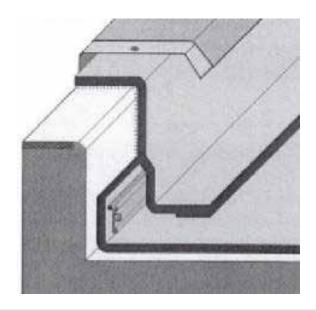




Other accessories









ELECTRON



The powerful Leister ELECTRON is a hand tool, perfect for the specialist.

FEATURES:

- Powerful
- Compact
- Robust
- Construction site tried and tested
- Approved of bitumen



Accessories for ELECTRON

107.258



> ELECTRON



Wide slot nozzle 75 x 2 mm, push-fit (with tool holder)

Wide slot nozzle 70 x 10 mm, push-fit

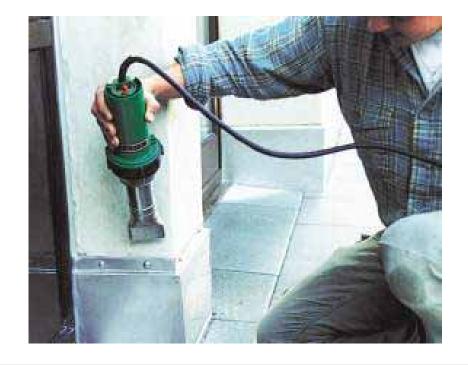
107.266



Wide slot nozzle 70x10 mm for heating up and drying

Wide slot nozzle 75x2 mm for welding of bitumen





Pre sales is after sales

We are not only speak about roofing!

- 1. Civil engineering
- 2.Roofing
- 3.Floring

1. 2. 3.









LEISTER





Market segment leaflet



Product flyers













Application video





UNIROOF E



BITUMAT

Success stories





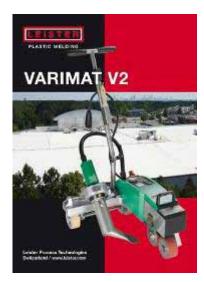


Application notes





Poster











Roll up for shows and more





Internet

- Internet <u>www.leister.com</u>
- Technical data sheet
- Operation manual
- YouTube product application

Miscellaneous

- Advertisement template
- PowerPoint Presentation

Extranet

- Product pictures
- Leister logos





Besten Dank für Ihre Aufmerksamkeit

