USER MANUAL

Model Gantry Sealer – MK6 & MK6C

Star Universal (Gosport) Ltd
Unit 2, Clarence Wharf, Mumby Road, Gosport, Hampshire, United Kingdom, PO12 1AJ

Tel: + (44) 23 9258 2857 Fax: + (44) 23 9251 1731
Email: sales@staruniversal.com
Web: www.staruniversal.com

Star Universal (Gosport) Ltd
Unit 2, Clarence Wharf
Mumby Road
Gosport
Hampshire
PO12 1AJ
Telephone Number: 023 9258 2857
Fax Number: 023 9251 1731
Website: www.staruniversal.com
Email: sales@staruniversal.com

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1 INTRODUCTION

With the purchase of this **Star Universal** heat sealing machine you will be able to pack a great variety of products in any of the different heat sealable materials available. To maximise usefulness of this heat sealer, **Star Universal (Gosport) Ltd** has ensured that all our machines, from the smallest to the largest model, are at the cutting edge of heat sealing technology. All our machines are built in-house to the highest standard and undergo rigorous testing prior to being sent to the end user.

Unpacking

This **Star Universal** heat sealing machine is packed in either a box or on a pallet for shipping. We recommend you keep the box/pallet so you can transport the heat sealer safely in the future, if ever required.

Use the following list to check the contents of the box/pallet:

Component Part:	Packed By and Date:	Unpacked:
Manual		✓
CE Certificate		
Spares Kit		
Additional spares (if applicable)		
Stand components (66 stand only)		

2.1 SAFETY INSTRUCTIONS FOR HEAT SEALER OPERATION

WARNING this manual should be read in full prior to operating this heat sealing machine. Ensure all the operators are aware of how to use it safely.

All users of this product are requested to follow all warnings and instructions contained in this manual. In addition, all warnings and instructions affixed to the machine should be followed.

This heat sealer is supplied with a 3 wire power cable and a moulded 13 amp fused plug. A secondary fuse is located on the circuit board for additional protection. Increased user safety can be achieved by the provision of a residual current device (RCD) being used on the supply circuit to the machine.

The machine is not rated for direct water contact unless otherwise stated.

Ensure the power is switched off and the plug removed from the socket prior to carrying out any service work.

The machine should be regularly serviced using genuine Star parts and is subject to the portable appliance test regulations.

When not in use switch the machine off.

The sealer is designed to be installed on a flat level surface to ensure stability during operation.

The sealer is a heavy unit, take extra care when moving the machine using appropriate lifting methods and equipment. For machine weights and dimensions see later in the manual.

Heat sealers are not designed to be used in flammable or explosive environments.

With repeated cycling residual heat can build up on the sealing jaws. Avoid touching them wherever possible.

Keep hands clear of the sealing jaws when operating the machine.

Always use heat sealers in a ventilated environment as sealing certain plastics may create fumes. Check with your bag/material manufacturer.

2.2 SAFETY FEATURES

All Star heat sealers are built to minimise risk of any injury to machine operators and anyone who can come into contact with them. The main risks involved with Star heat sealers and the safety features built into the machines are:

Exposed Moving Jaws: The jaws are closed by either electrical solenoids or pneumatic cylinders. The force when opening or closing is low to minimise the risk of injury. There is a jaws closed switch on both solenoids/cylinders which prevent heating or weld pressure being applied until the jaws are fully closed. Warning labels are affixed to the jaws to advise operators to keep their hands clear.

Heated sealing jaws: The heating element and jaws may become hot with continued use. This temperature is low enough so as not to risk causing burns. The element ribbon is only heated to weld temperature when the jaws are fully closed. Warning labels are affixed to the jaws to advise operators to keep their hands clear and that the jaws can become a hot surface.

Exposed electrical terminal: The only exposed electrical terminals are low voltage on a Separated Extra Low Voltage circuit with a maximum of 55Vac RMS and pose no risk.

Star Heat Sealers meet the health and safety requirements of The Supply of Machinery (Safety) Regulations 1992 No. 3073 and The Machinery Directive 2006/42/EC. The CE mark will be affixed to the product where applicable.

A request is made that any known incidents that result in injury to an operator from the legitimate use of this heat sealer is reported to Star Universal Technical Department.

Tel: 02392 582857 e mail: info@staruniversal.com

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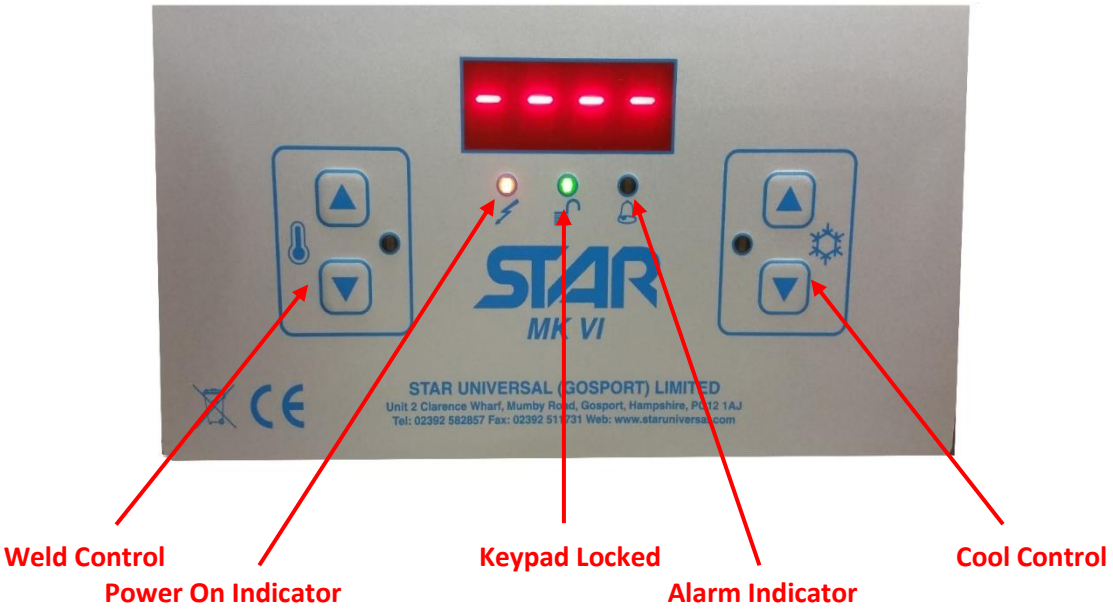
3 MACHINE SETTING

3.1 Star Gantry, MkVI Controller



SETTING THE WELD AND COOL TIMES.

Set the weld and cool times as below. Place some of the material you wish to seal between the sealing jaws and cycle the machine by pressing the foot switch. When the jaws open, if the material has not welded increase the weld and cool times. If the weld looks molten decrease the weld and cool times. Repeat the above process until you achieve a flat strong weld.

Weld Time

With the machine turned on press the weld control ▲ or ▼ key and release, the amber weld indicator will flash. To increase the weld time, press the weld control ▲ key, to decrease press the weld control ▼ key. As a starting point use 0.7. After 5 seconds the screen will default back and save the figure entered.

Cool Time

With the machine turned on press the cool control ▲ or ▼ key and release, the blue cool indicator will flash. To increase the cool time, press the cool control ▲ key, to decrease press the cool control ▼ key. Cool time should be approximately 3 times weld time. After 5 seconds the screen will default back and save the figure entered. Certain bag materials may require more or less cool time than advised above, adjust this as required.

3.2 Setting The Compensation, Key Lock And Jaws Timeout

During machine operation a residual heat build-up can affect the quality of the weld. To try and minimise this the sealer has built in compensation which you can set. Firstly, set the weld and cool times as above from a cold start then repeat the steps as below to achieve consistent weld quality.

Heating Compensation

This relates to the amount of time the controller reduces the weld time after each operation to compensate for residual heat. A value of 0 indicates that heating compensation is disabled. A low value will reduce the weld time by a small amount and is suitable for a machine that warms up very slowly. A high value will reduce the weld time by a larger amount and is suitable for a machine that warms up very quickly.

To adjust the value, with the machine turned on, press both of the weld control ▲ and ▼ keys for 2 seconds and release when **hc** appears on the screen. To increase or decrease the figure use the heat ▲ or ▼ key. After 5 seconds the screen will default back and save the figure entered. Cycle the machine 15-20 times weld one of your bags. If the seal fails decrease the figure, if it is molten increase the figure.

Cooling Compensation

This relates to how quickly the controller increases the weld time when the machine is idle, compensating for the machine cooling down when not being used. A value of 0 indicates that cooling compensation is disabled. A low value will increase the weld time by small amount and is suitable for a machine that cools down very slowly. A high value increases the weld time by a larger amount and is suitable for a machine that cools down more rapidly.

To adjust the value, with the machine turned on press both of the cool control ▲ and ▼ keys for 2 seconds and release when cc appears on the screen. To increase or decrease the figure use the cool ▲ or ▼ key. After 5 seconds the screen will default back and save the figure entered. Cycle the machine 15-20 times, allow it to cool for a few seconds and weld one of your bags. If the seal fails decrease the figure, if it is molten increase the figure.

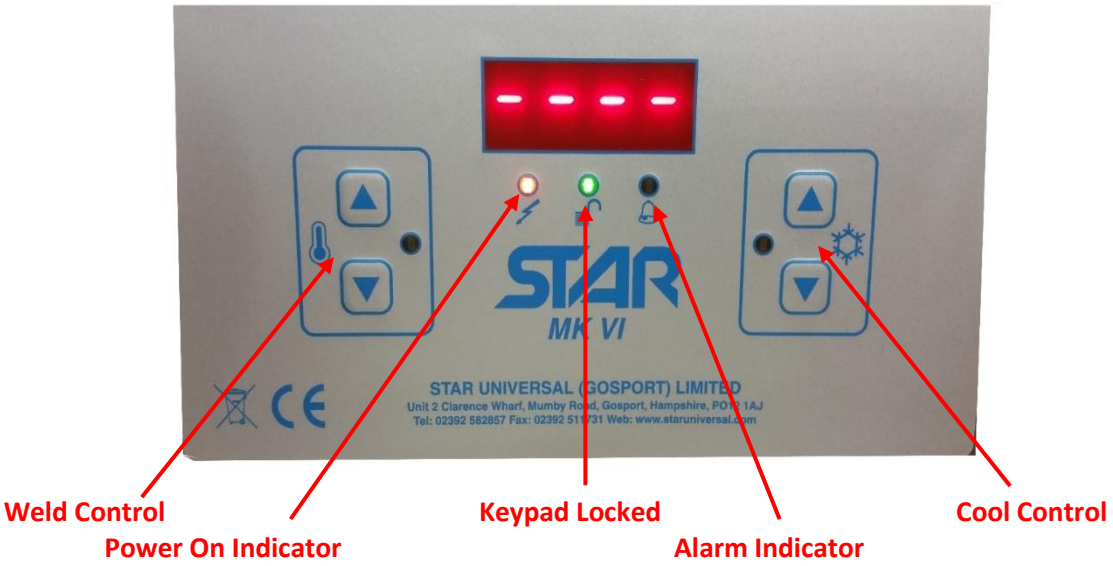
Key Lock

To prevent unauthorised alteration, the Star MkVI has a control lockout. If the green keypad locked light is on the feature is not engaged. To engage or disengage press the cool ▲ or ▼ key and release to display the cool time, the blue indicator will flash. Press and hold both of the weld ▲ and ▼ keys for 2 seconds. The green **keypad** locked light will come on or go off once the two seconds is up. Release the keys and wait for the screen to go back to default.

Jaws Timeout

This is the time allowed for the jaws to close, jaws to open or automatic knife to complete its travel before the alarms engage. To alter press the cool ▲ key and weld ▼ key for 2 seconds until the display shows 2 digits with a decimal point between them. To alter this figure, use the weld ▲ and ▼ keys. After 5 seconds the screen will default back and save the figure entered.

3.3 Star Gantry, MkVI C Controller



SETTING THE WELD AND COOL TEMPERATURES.

Set the weld and cool temperatures as below. Place some of the material you wish to seal between the sealing jaws and cycle the machine by pressing the foot switch. When the jaws open, if the material has not welded increase the weld and cool temperatures. If the weld looks molten decrease the weld and cool temperatures. Repeat the above process until you achieve a flat strong weld.

Weld Temperature

With the machine turned on press the weld control ▲ or ▼ key and release, the amber weld indicator will flash. To increase the weld temperature, press the weld control ▲ key, to decrease press the weld control ▼ key. As a starting point use 85. After 5 seconds the screen will default back and save the figure entered.

Cool Temperature

With the machine turned on press the cool control ▲ or ▼ key and release, the blue cool indicator will flash. To increase the cool temperature, press the cool control ▲ key, to decrease press the cool control ▼ key. As a starting point use 75. After 5 seconds the screen will default back and save the figure entered. Certain bag materials may require a higher or lower cool temperature than advised above, adjust this as required.

3.4 Setting The Key Lock, Temperature Rise And Jaws Timeout

Temperature Rise Timeout

This relates to how quickly the controller expects to see a rise in temperature once the sealing jaws have been closed. If it does not see the expected rise in temperature the controller will alarm.

To adjust the value, with the machine turned on press both of the cool control ▲ and ▼ keys for 2 seconds and release when a number appears on the screen. To increase or decrease the figure use the weld ▲ or ▼ key. After 5 seconds the screen will default back and save the figure entered.

Key Lock

To prevent unauthorised alteration, the Star MkVI has a control lockout. If the green keypad locked light is on the feature is not engaged. To engage or disengage press the cool ▲ or ▼ key and release to display the cool temperature, the blue indicator will flash. Press and hold both of the weld ▲ and ▼ keys for 2 seconds. The green **keypad** locked light will come on or go off once the two seconds is up. Release the keys and wait for the screen to go back to default.

Jaws Timeout

This is the time allowed for the jaws to close, jaws to open or automatic knife to complete its travel before the alarms engage. To alter press the cool ▲ key and weld ▼ key for 2 seconds until the display shows 2 digits with a decimal point between them. To alter this figure, use the weld ▲ and ▼ keys. After 5 seconds the screen will default back and save the figure entered.

4 MACHINE OPERATION

Star Gantry

Once the weld and cool time/temperature have been set, along with the compensation if required, the sealer is ready to use.
The operation involves placing the material to be sealed between the jaws, pressing the foot switch/push button, the top jaw descends automatically and runs through a weld and cool cycle, releasing on completion.
If an automatic cutter is fitted ensure the knife selector switch is in the correct position (on or off).
When operating the machine ensure your hands or anyone else's are not between the jaws. Try and avoid touching the jaws if possible as they can become warm with continuous use.

5 ERRORS AND FAULT FINDING

(To reset the machine after an error, turn the power off for 5 seconds and then turn on again)

Error	Possible Cause	Solution
The machine doesn't turn on	• The plug is not inserted into the plug socket • Fuse blown • Internal error	• Check machine is plugged in • Replace fuse, external/internal • Contact Star Universal
E1 (power detected across elements when the machine is not cycling)	• Weld relay stuck on • Board fault	• Replace relay • Replace board
E2 (Jaws failed to close after start signal received)	• Jaws timeout too low • Solenoid jamming • Solenoid pin broken • Micro switch not made. Board fault	• Increase jaws timeout (see p8) • Check solenoid alignment and that they are free moving/clean and re-graphite • Replace solenoid plinger • Check micro switch clicks and are made/replace • Replace board/contact Star universal
E3 (no power detected across the element when the machine is running a weld cycle)	• Broken element • Weld relay not working • Board fault • Transformer blown	• Replace element • Replace relay • Replace board/contact Star Universal • Contact Star Universal
E4 (Jaws Failed to open after cycle)	• Jaws timeout too low • Tapes have been replaced too tight/ tapes sticking • Jaw return spring stretched/broken • Solenoid jammed • Board fault	• Increase jaws timeout (see p8) • Replace tapes (leaving loose) Replace spring • Check solenoid alignment and that they are free moving/clean and re-graphite • Replace board
E5 (Automatic cutter failed)	• Link broken if manual cutter or no cutter • Blade carriage not reaching end of stroke	• Replace link on connection 10 • Ensure no scraps are preventing full blade travel • Contact Star Universal
E6 (Temperature rise in element not sensed within timeout)	• Timeout not set correctly • Broken element • Weld relay not working • Board fault • Transformer blown	• Adjust timeout (see p9) • Replace element • Replace relay • Replace board/contact Star Universal • Contact Star Universal
E7 (Over Temperature)	• Thermocouple not connected • Thermocouple broken • Weld relay stuck on • Board fault	• Check thermocouple is connected to board input • Check thermocouple is in the correct position on jaw (see p16) • Replace thermocouple • Replace relay • Replace board/contact Star Universal

6 MAINTENANCE

WARNING! Unplug machine before any maintenance is carried out

DAILY MAINTENANCE	
Visually check barrier tape	Change tapes if there are any burn marks, rips OR damage.
Jaws move freely	Before turning machine on, manually close the jaws and ensure they move freely.
MONTHLY MAINTENANCE	
Sealing jaws	Change tapes, element and rubber if necessary. Check end blocks are not damaged.
6 MONTH MAINTENANCE	
Repeat monthly maintenance as above	A 6-month maintenance kit can be ordered from Star Universal.
Internal inspection	Visually check weld relay - if discoloured replace. Lubricate solenoids using graphite powder and check alignment. Ensure solenoid micro switches are correctly aligned.
ANNUAL MAINTENANCE	
Contact Star Universal	You can request an onsite visit or send the machine to **Star Universal (Gosport) Ltd.**

7 JAW MAINTENANCE AND SERVICE SPARES

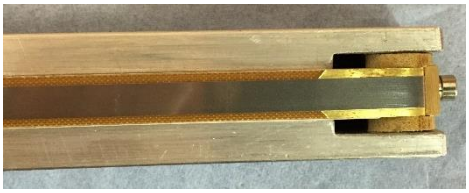
Under normal operating conditions it will be necessary to replace certain consumable items that are readily available from our spares department. Use of non-Star genuine parts or the incorrect part number can cause damage to the machine and invalidate the warranty.

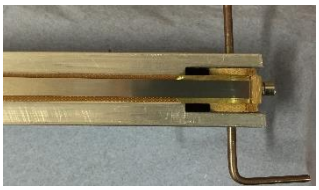
Before replacing any sealing jaw items ensure the machine is switched off and unplugged.

Replacing consumable items

Barrier Tape: The barrier tape is a brown Teflon coated cloth designed to prevent plastic sticking to the element ribbon and electrically isolate the elements from each other. If this becomes burnt or damaged peel the old tape off, removing any excess adhesive from the jaws. Take a length of new tape, remove one of the adhesive backing strips and stick it to one side of the jaw, remove the other adhesive backing strip and stick to the back of the jaw. The tape should be applied loosely so it is not in contact with the element ribbon when the jaws are open.

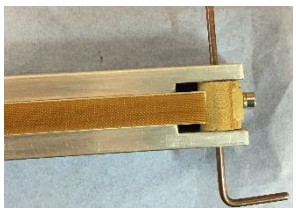
Element Ribbon: Remove the barrier tape as above. Place the loading pins through the expansion blocks at either end of the jaw so it is held under pressure and loosen the Allen key bolt. Remove the old ribbon. Cut a length of new element ribbon slightly longer than the jaw and fold one end back on itself by about 5mm. Place this end in one of the expansion blocks and tighten the Allen bolt. Measure the length of ribbon required to fit into the other expansion block, cut to length and fold the end back 5mm. Fit in the other expansion block and tighten the Allen bolt. Remove the loading pins and re-cover with barrier tape. Import on double heat machines the two elements must line up to produce a good seal.



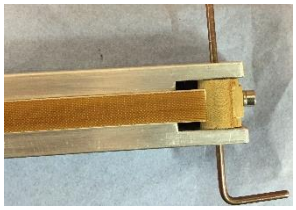


Brass Shim: Remove barrier tape and element ribbon as above. Remove the brass clamp by fully unscrewing the Allen bolt. Replace the brass shim, attach the brass clamp and re fit the ribbon and tape as above.

Backing Tape: Remove the barrier tape and element ribbon as above. Peel the backing tape off the silicone rubber and clean any residual adhesive left behind. Cut the new backing tape to length and peel off the yellow adhesive backing strip. Stick the new backing tape onto the silicone ensuring a smooth even surface. Replace the element ribbon and barrier tape as above.



Silicone Rubber/Sponge: Remove the barrier tape and element ribbon as above. Peel the silicone rubber away from the aluminium sealing jaw and clean any residual adhesive left behind. Apply a NARROW bead of silicone adhesive to the channel, cut a piece of silicone rubber to length and press into the channel ensuring a smooth even surface. Replace the element ribbon and barrier tape as above.



Compression Spring and Ball Bearing: Remove barrier tape and element ribbon as above, remove loading pin taking extra care due to the spring being under compression. Replace the compression spring and ball bearing and press the end block in to re fit the loading pin. Refit element ribbon and tape as above.

8 THERMOCOUPLE REPLACEMENT

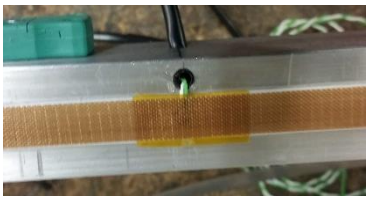
Thermocouple: If the silicone has been replaced cut a shallow V in it just deep enough for the thermocouple wire to sit flush with the rubber, the tip/disc should be sat on top of the rubber. Place the thermocouple through the hole and fasten in place with thermocouple adhesive strip. The tip of the thermocouple should be in the centre of the silicone. The backing tape should be applied to cover the thermocouple.

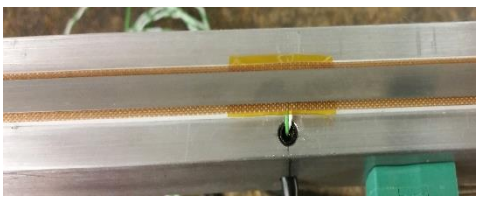
1. Cut V shape into rubber:

2. Place thermocouple through hole in jaw:

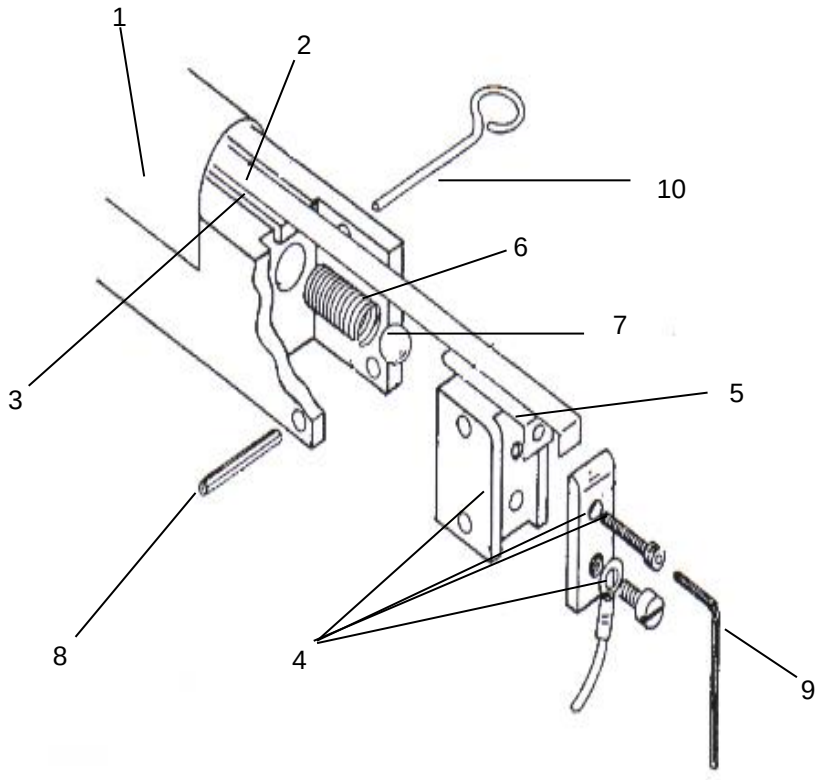
3. Secure thermocouple using the thermocouple adhesive strip:

4. Place backing tape over length of rubber and replace the element ribbon:





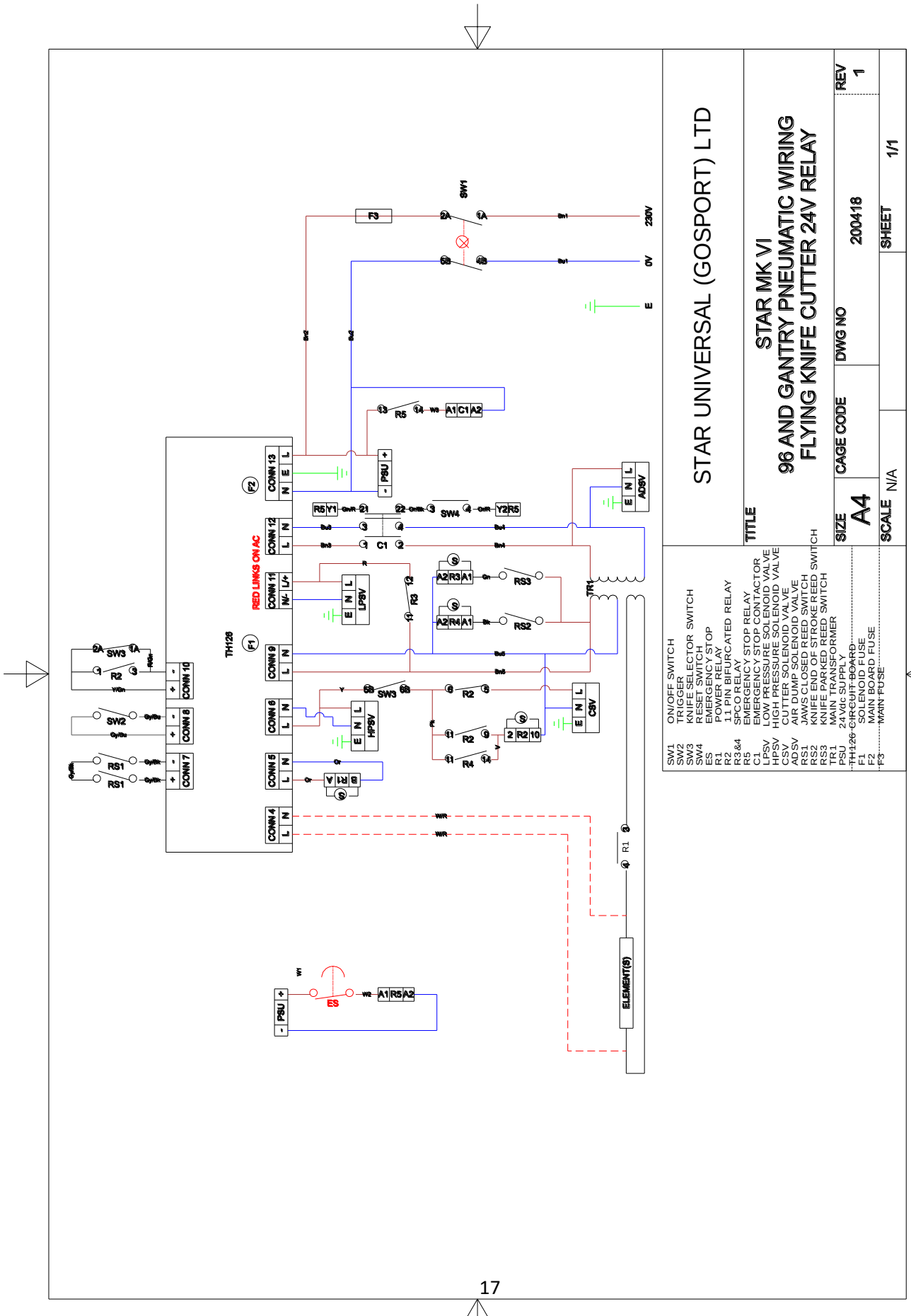
9 HEATED JAW TENSION ASSEMBLY



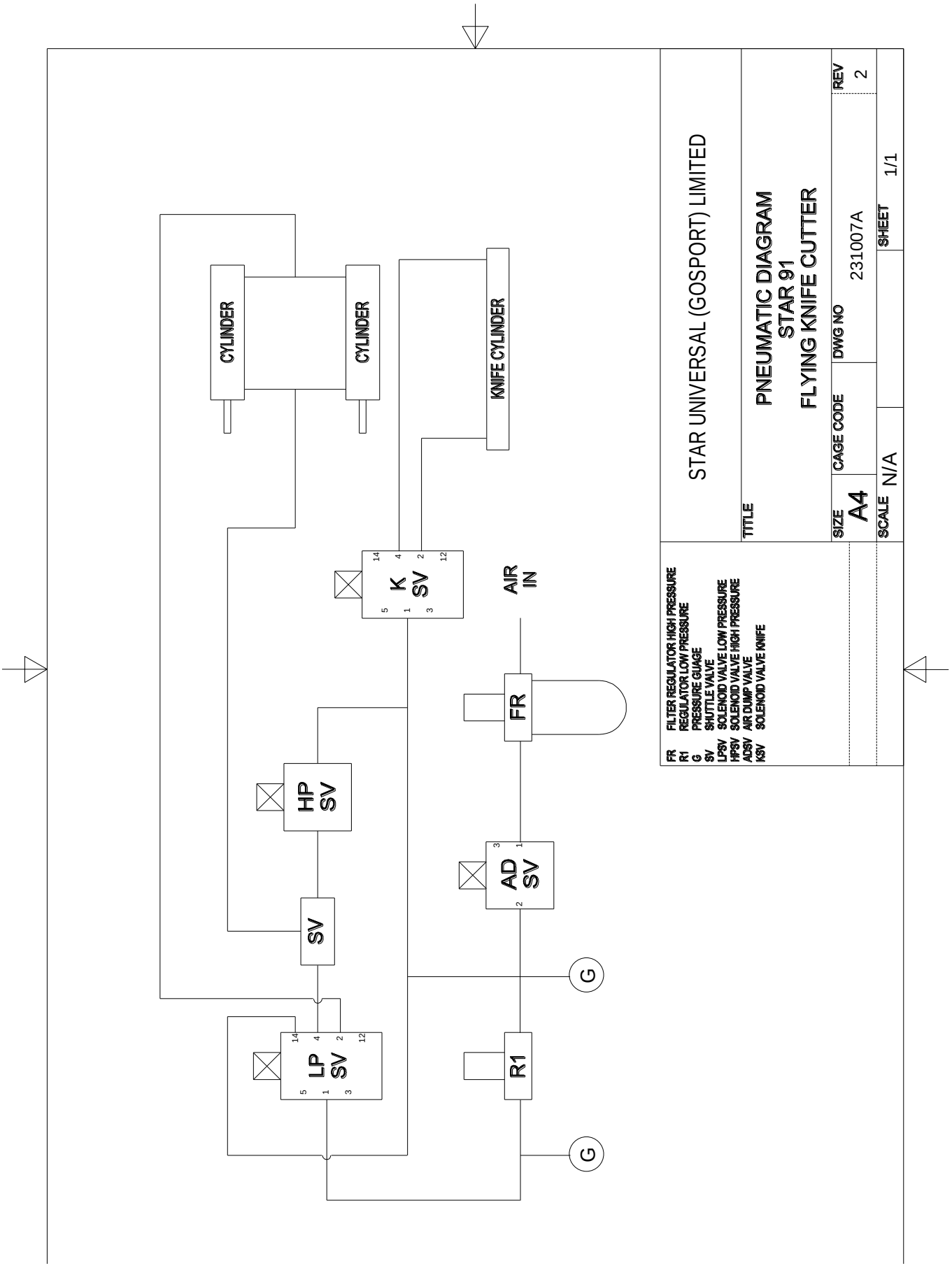
Diag No	Part No	Description
1	B018003	10m roll Barrier Tape
NA	B018022	10m roll Backing Tape
2	E024002	10m roll Element Ribbon
3	B017002	1m Silicone Rubber
4	M202005	Expansion Block (Pair)
NA	E015007	Expansion Block Eyelet (Pair)
5	M202004	Brass Shim
6	B021005	Compression Spring
7	B022002	Ball Bearing
8	B023002	Roll Pin
9	B029002	Allen Key
10	M202009	Loading Pin (Pair)
NA	B017014	85g Silicone Glue

10 WIRING DIAGRAMS

STAR MK6 GANTRY



STAR GANTRY PNEUMATICS



11 PARTS LIST

Diag No	Part No	Description
SW1	E010033	On/Off Switch
SW2	E010029 E003022	Push Button Station Safety Start Relay
SW3	E010030	Cutter On/Off Switch
SW4	E010003	Emergency Stop Reset
TR1	E001001	Transformer
R1	E003008	Weld Relay
R2	E003002	11 Pin Relay
S	E021003	Lead Suppressor
R3&4	E003010	SPCO Relay
S	E021001	Relay Base Suppressor
R5	E003008	Emergency Stop Relay
RS1	P122013	Reed Switch
RS2&3	E011023	Reed Switch
TH126	E005001	MkVI Circuit Board
F1	E017019	Board Fuse
F2	E017005	Solenoid Fuse
F3	E016001 E017009	Fuse Holder (If fitted) Main Fuse (If fitted)
PSU	E001010	24V dc Power Supply
C1	E003021	Contactor
NA	E013016	Mains Lead and Plug
NA	E014001	Terminal Block (Strip of 12)
LPSV,HPSV, CSV,ADSV	P109001 P109004	Solenoid Coil Plug Connector
ES	E011025	Emergency Stop
BV1	P115002	Air Ball Valve
REG1	P111002	High Pressure Filter Regulator
REG2	P112002	Low Pressure Regulator
G1	P113004	High Pressure Gauge
G2	P113003	Low Pressure Gauge
LPSV	P106002	Low Pressure Solenoid Valve
HPSV&ADSV	P105006	High Pressure Solenoid Valve
CSV	P106008	Cutter Solenoid Valve
SV	P107002	Shuttle Valve
CYL1	P101004	Jaw Cylinders
CYL2	NA	Cutter Cylinder
NA	B014002	Membrane Keypad

12 TECHNICAL SPECIFICATION

STAR GANTRY

Seal Length	300mm – 3000mm
Seal Width	5.5mm standard
Cut Length Automatic Cutter	300mm x 3000mm
Jaw Opening	Standard 50mm, up to 1000mm available
Max Material thickness	1000µm approx. (4000g)
Sealing Cycle Time	Typically, 6-40s
Power Supply	230V 50/60Hz Single Phase, 115V Optional
Average Power Consumption / Cycle	0.02 – 0.04kWh
Average Power	Weld 2000W, Cool 250W, Standby 25W
Air Supply Pneumatic Machine Only	6-8 Bar Clean Dry Air
Air Consumption / Cycle	0.525 NI – 3.5NI at 6 Bar
Overall Length	Weld length + 290mm or 380mm + controller
Controller Housing	500mm x 400mm x 200mm
Depth	Standard 300mm bench mounted, 800mm free standing
Overall Height	Standard 620mm bench mounted, 1620mm free standing

All the above weights and dimensions are approximate and based on the standard machine E&OE.
Star Universal reserves the right to change the above specifications without prior notice.

13 ENVIRONMENTAL RESPONSIBILITY

MACHINE RECYCLING

As this machine contains electrical and electronic components it must be disposed of correctly and not in general land fill.

As Star Universal only build industrial equipment to individual customer requirements the responsibility for the disposal lies with the end user.

Star Universal will offer a collection service for machines we have built at the end of their useful life for recycling.

Please contact us for prices stating the machine model and serial number.

Producer Registration No. WEE/MM7018AA

14 STAR UNIVERSAL WARRANTY POLICY

The Company provides a 1-year warranty from the date of delivery on all Star Heat Sealing machines. If any part is found defective due to faulty manufacture, Star Universal will affect the repair or replacement to the customer free of charge providing:

a) The fault is reported directly to the Service Department.

b) The fault is not caused by misuse, neglect or faulty adjustments by the customer.

c) The machine failure has not occurred through normal wear and application usage.

d) The machine has not been serviced or repaired by any person not authorised by Star Universal during the warranty period.

e) The machine is returned to Star Universal at the address below.

Consumable items like the jaw barrier tape and heating elements are not covered by the warranty but are readily available at a charge from the Service Department.

Travel time to attend a machine on site may be charged at the current applicable rates.

This warranty is additional to the normal customer statutory rights.