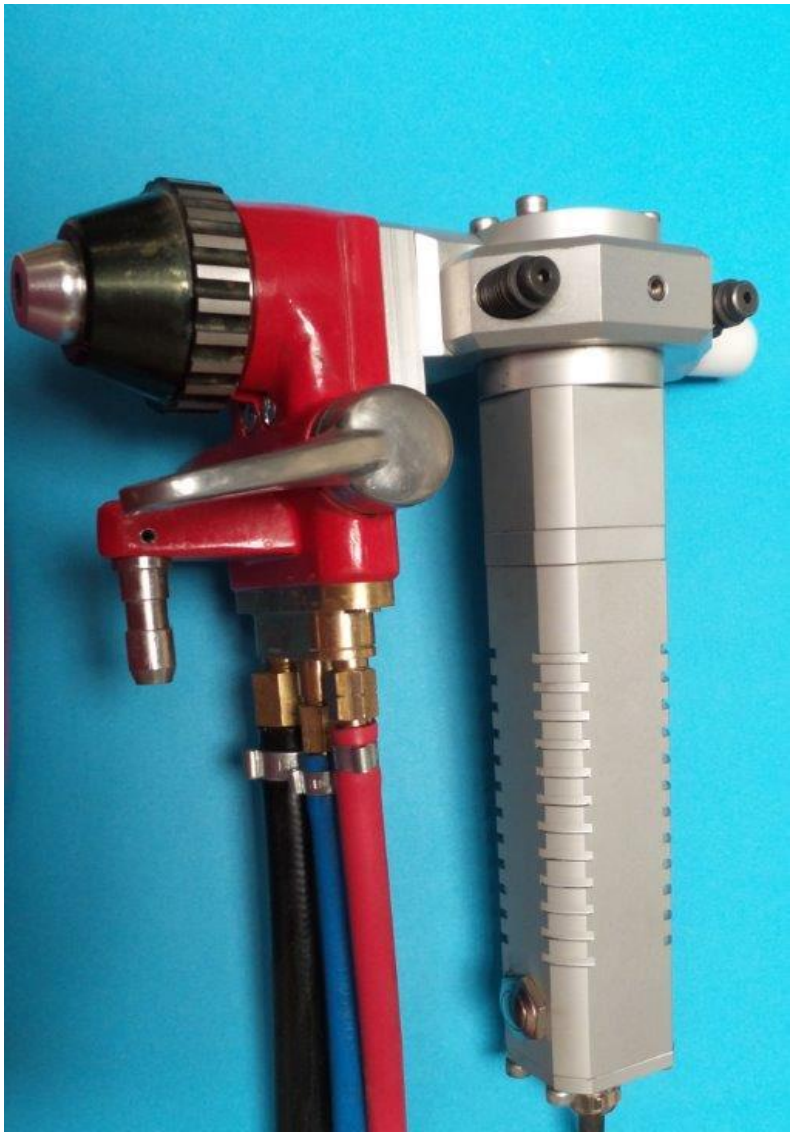
Manual Metallspray gun Henry 17 E



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Introduction

The Henry 17e is an thermal spray gun for spraying by hand held operation using metalizing wire.
The wire drive unit is working on 24V DC engine and for melting the wire we need a mix of combustion gas Oxygen and Propane.
For spraying the wire and cooling the gun head we need compressed air at least 1500L/min at 5 bar.

Intended Audience

All personnel who work with the Henry 17 E spray gun shall be familiar with the material in this manual andnow what the specific topics are to work safe and get the best results .

Chapter	Intended Audience
1 Safety	Everyone working with the spray gun
2 Product Description	Everyone working with the spray gun
3 Installation	Installation engineers
4 Operation	Everyone working with the spray gun
5 Troubleshooting	Maintenance engineers
6 Maintenance	Maintenance engineers

Amitech b.v. reserves the right to make improvements to the Henry 17E spray gun without prior notice.

1 - Safety

General safety regulation:

- Use only original spare parts.
- Good housekeeping.
- Proper material/gas storage and handling.
- Sufficient exhausting of gases and fumes.
- Personal protection, clothing, ear, eyes and breathing (respirator) protection.
- Use maintenance of equipment.
- Operator training.
- All personal responsible for the safe use of this equipment must read and understand this instruction manual.

Specific Safety Regulations:

- The combustion spray gun generates electromagnetic radiation in the form of visible light, infrared and ultraviolet radiation. These types of radiation are hazardous and can cause burns or blindness in unprotected eyes.
- The noise emission is greater than 85 dB can produce noise levels as high as 136 dB
- Proper maintenance are important for system performance and safe working environment the use of dust collectors and the use of explosion panels. The exhaust of the ventilation system should be vented to the outside of the building.
- Combustion spray processes generate carbon dioxide, carbon monoxide, NOx, dust and fumes. A minimum air velocity of 1,5m/sec is recommended in the areas adjacent to the spray gun and the object being coated.

- The spray stream can heat up and ignite objects in the vicinity such as the walls, cables , hoses and clothes . Never aim the spray stream at people or objects other than the work piece to be coated.

2- Product description.

The HENRY 17e Spray gun is a hand held spray, wire –feed, combustion thermal spray gun with a electrical wire feed system.

The spray gun is capable for spraying with only Oxygen(O2) and Propane (C3H8), Compressed air is to be need for transfer the hot particles and cooling the gun head.

The wire size that must be used is 3,17mm (1/8") for thicker wire of 4mm (5/32") you have to change the burner and air cap.

Techn.data.:

Weight	2,83 Kg
Wire feed rate	0,2m/min – 15m/min
Spray distance	130mm – 200mm
Compressed Air requirements	1500 L/min- 5 bar.
Process Gases: - Oxygen (O2) - Propane (C3H8) or (C3H6)	 3,45 bar at 85,4 NLPM 3,45 bar at 18,4 NLPM
Wire material	Zn- Zn/AL(85%/15%),Cu,Al

3- Installation

The control box must be placed outside the operating area and well mounted on an smooth surface.
Bottles must be good connected to the wall or mounting support and must be stored separated and upright. Always use a flame trap for Oxygen and Propane and an high flow lock on the propane outlet.
Don't store the bottles in direct sunlight.
Don't smoke in the area. If a tank is found lying on its side, carefully return the tank to its upright position and wait for 30min. before using.
Use the installation in a good ventilated area, with dust collectors.
Propane connectors have Left- hand treads.
Tighten all fittings firmly but do not overtighten.

4- How to start up.

Important!!!!

Always put the wire trough the gashead of the gun before ignite (±10mm)

1- Wear al the protection and place fire extinguisher.
2- Check level of Gas and Oxygen
3- Check Compressed air is "on" and 5 bar, hose size ½".
4- Put the electrical power switch "on" at the control box (230Volt ac /50Hz).
5- Check the rotation of the wire feed roll by switching the gun "on".
6- Put the wire in the rear wire guide and switch the gun "on" push a little at the wire so he can get grip on it. Switch off the gun when the wire is at least 5mm /10mm out of the air cap. When it is to much you can cut of the wire on the specific length or pul the wire backwards (the wire than can scrape a bit of).

7- Crank up the gas lever shortly and check for compressed air is coming out and levels on the flow indicator gas and propane are correct. They can be adjust by the fine tune knobs or by the main regulators on the bottles.
8- Aim the gun at free direction, not directly at your spray object.
9- If correct than you can ignite the gun by a lighter. You have to crank up the gas lever in the position 45˚ and switch on the lighter when the gun burns you have to crank up the gas lever within 3sec. (slowly) in the 90˚ position. If you wait to long the air cap can be melt down.
10- Switch on the wire feed knob on the gun body,check the correct distance of burn of the wire 5mm/7mm out of the air cap, you can adjust the length by the wire feed knob at the control box
11- Aim now on your spray object with a good spray distance of 200mm from your object and start with coating. Pay attention to your hose and wire.
12- To stop, Crank down the gas lever, switch off the wire feed knob, close the bottles, shut down the compressed air. Crank up the gas lever in the 90˚ position and make the hoses pressure less. Remove the wire by cutting or pulling.
13- Clean up the installation and roll up the hose package and switch off the electrical power.

5- Trouble shooting / What you need to know about:

- Propane in the bottles is a liquid to become gas it has to expand there for it needs a warm environment. For 1Kg propane you get 500/600 L gas. When the environment is to cold you can get liquid Propane out of your gun. You have to stop, and place the bottles in a room with a temperature of at least 15˚C . What can help is to turn open the main bottle cock not more than 1/16”of a round, or connect more bottles with an empty bottle where the liquid can expand to became gas. The empty bottle must be than full open.

- The normal consumption of Oxygen to 36Kg Propane is 9 bottles of Oxygen (200 Bar) approximately 1 hour each bottle.

- Oxygen is an compressed gas in a bottle when the environment is to cold or the flow capacity is to high, the reducing valve can freeze. What can you do; is to place the bottle in warm environment, or use more Oxygen bottles to reduce the flow rate out of one bottle. Or install an Oxygen pre heater.

- When the wire sticks into the burner of the gun, what do you have to do; remove the air cap nut, remove the air nozzle, remove the burner nut, pull on the burner or switch on the wire feed knob, cut off the wire 20mm behind the burner. Put the burner into a vice not to strong and hit with a light hammer on the wire and tray to turn the wire.
  Check the tip of the burner it have to be free of spoilers at the outside cone the surface must be smooth (remove spoilers), clean the inside and use *little* grease on the seals with the required grease Krytox or Molykote 111 Compound.

- Use burner nr. 49 – for wire 1/8”= 3.17mm and Air cap coded with :CH.

- If the wire sticks into the burner too often, what could check!;
  the wire feed speed is to low, the wire burns of too much into the gun head, increase the wire speed.
  Clean the wire feed roll.
  Increase the tension on the wire by placing more spring dish (13 pair on each bolt with 1 normal ring).
  Clean the wire or use a small softhose 3cm (make an hole in the wall of the hose and put the wire trough it so it can scrape the dirt of during operation).

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- When the spray surface is to rough, what could you check!
  wire speed to high, go down with the wire speed.
  Gas /oxygen mix incorrect (not heat enough), adjust the flow or replace the bottles

- When the wire feed motor doesn't run and the green LED is on, check the fuse in the control box (4 amp.) or check the power cable of the gun.
- Back fire, Gun will appear to a "bang" and will burn back in the gashead, what could you check.
  Leak at the wire nozzle 0-rings.
  Dirt in the nozzle.
  Worn or oversized Nozzle.
  Gas valve scratched. Seals worn.

LH-side view control box with power switch and green light.

In-side view with inverter ,engine controller and 2 fuse holders (4Amp)

RH-side view control box with wire speed knob.

6- Maintenance

- Before every operation, check the hose package and accessories for leakage, etc. don't use the equipment if there are leakage, or outer things . Action: go to your supervisor and repair..
- After operation, clean the gun body ,clean the air nozzle and clean the burner and use a little crease on the 0-rings.
- Every 2 years replace all the gas hoses.
- Clean the outside of the control box, after every use.