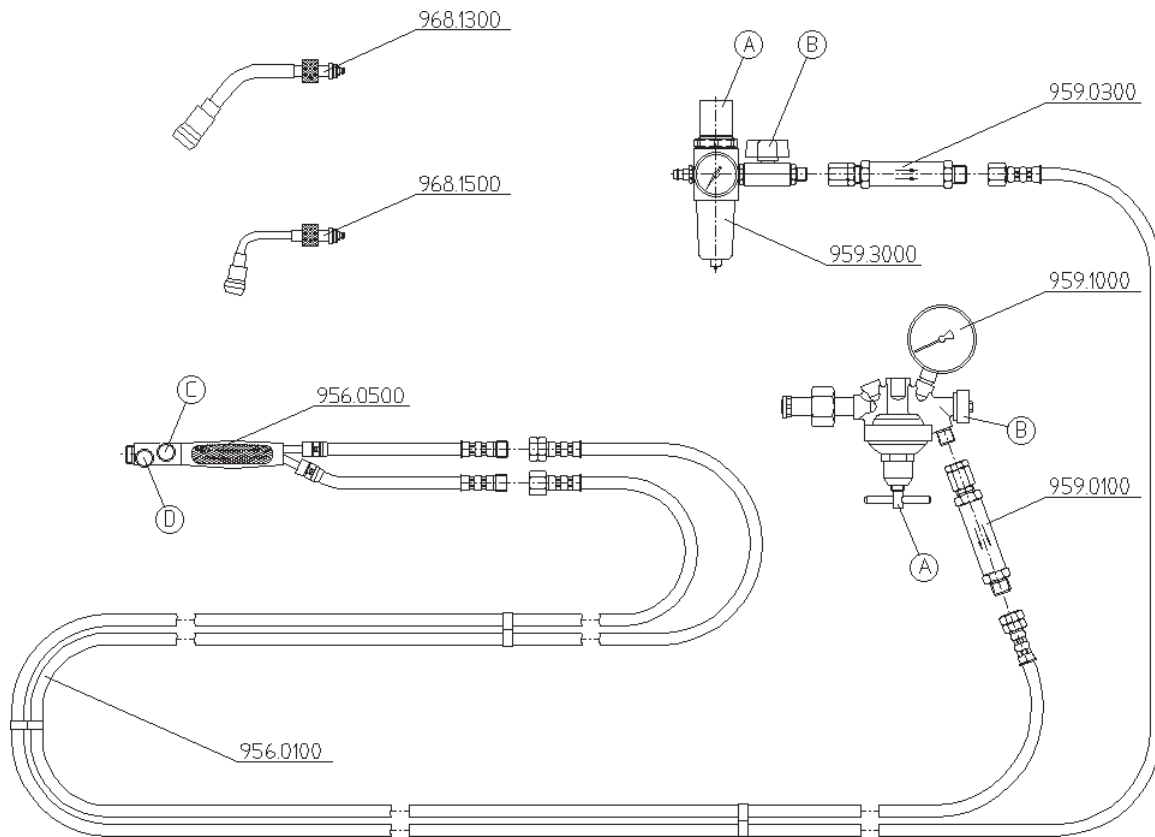


Melting System 2 (Propane Gas / Compressed air)

No. 956-0000

ENGLISH



In the interest of your safety we advise you to read through this instruction manual carefully and take note of all the points mentioned. The instruction manual must always be available for reference at your work place.

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1. Introduction

The Melting System 2, Art. No. 956-0000, for use with the combination of propane gas / compressed air, has been tailor-made by Renfert to suit your needs. The system has been produced with the metals and alloys used in the dental industry specifically in mind. Each component has been individually tested. The complete system has been approved by the relevant trade association in accordance with the equipment safety regulations in relation to work safety.

The Melting System 2 contains

- the pressure regulators for propane gas (liquid gas¹) (Art. No. 959-1000) and compressed air (Art. No. 959-3000),
- the flashback arresters for propane gas (Art. No. 959-0100) and compressed air (Art. No. 959-0300),
- a set of hoses (Art. No. 956-0100) and
- a handpiece (Art. No. 956-0500).

Only the following torch inserts are approved for use with the above set

- the soldering torch Art. No. 968-1500 and
- the soldering and casting torch Art. No. 968-1300 which form part of the Renfert range of soldering and melting systems.

¹Propane gas (liquid gas) will henceforth be referred to as propane gas in this instruction manual.

2. Safety instructions / Areas of caution

- It is against all regulations to operate a faulty gas installation system.

Refer to

- the relevant accident prevention regulations from the trade associations and their ZH-1 schedules, (in particular for Germany UVV VBG 23 or VBG 15 - available from your trade association or from Karl Heymanns Verlag, Luxemburger Straße 449, 50939 Köln),
- the technical regulations for liquid and natural gas (in Germany DVGW, TRF and TRGI) as well as
- the relevant gas association publications (in Germany DVGW).
- The system must only be used as a whole.
- The set working pressures must correspond to the details given on the torch inserts.
- The nozzles of the torch inserts must never be tampered with.
- For your own safety it is prohibited to exchange components of this system for components not designed for use with this system.
- The hoses must be laid out in an orderly manner without danger of tripping over them.
- The length of each hose is prescribed by regulations and must not, therefore, be shortened.
- Never point the flame towards people, gas hoses or gas bottles.
- Only use the system with the types of gas prescribed for that system.
- Keep all the working and junction components with respect to oxygen free from oil and grease.
- Never substitute compressed air and oxygen components.
- The burner must only be ignited with a suitable gas lighter in order to guarantee safety on ignition. Matches or cigarette lighters are not approved for this purpose as they may lead to burn wounds on ignition.
- The burner must be ignited in a safe manner. This includes allowing any gas/air mixture that could be present in the tubes to flow out as well as using a suitable gas lighter.
- Welding must only be carried out when wearing suitable protective equipment. In all cases suitable welding goggles must be worn.
- When carrying out welding, clothing that covers the body satisfactorily must be worn and this clothing must not be contaminated with easily flammable or flammable substances.
- Taking the process, working materials and uses into consideration all work places must be set out so as to keep inhaled air free from harmful substances. This can be done via aeration or extraction systems.

ATTENTION!

- **Burner gases and their by-products can be poisonous. Oxygen promotes burning, therefore your work place is under a great risk of fire even with**

the slightest over-concentration of oxygen in the vicinity. When welding, health damaging substances can result (gas, fumes, smoke, particles) in such a concentration that can be harmful to your health. When work is being carried out over long periods and in one place an extraction unit is required at the place where these hazardous substances may be formed (VBG 15; § 4).

- Gas bottles must not be set up in
 - > stairwells, house and building hallways, small yards, entrances, driveways nor anywhere close to these.
 - > on the stairs containing installations of escape routes.
 - > in garages.
 - > in inhabited rooms or rooms with free access to the public.
 - > near to flammable substances.
 - > in badly aerated rooms.
 - > in rooms under pressure, except for oxygen and compressed air.
- The work place must only be set up with the necessary gas bottles to carry out the work uninterrupted.
- Gas bottles must be set up within easy reach and protected from effects of warming.
- Gas bottles must be able to stand without danger of toppling over.
- Prevent any unnecessary escape of unburned gas and gas mixtures. This means that when work is interrupted for longer periods the gas supply should be switched off.
- After completion of your work the torch must be stored in a suitable frame (not just left to hang over the bottle valve!).

3. Maintenance / Repair

- Installation and maintenance work on gas units must only be carried out by qualified or authorised specialists in accordance with the current regulations.
- Check the complete installation regularly for leaks and/or damage.
- It is compulsory to have an annual service for gas installations.
- Dry flashback arresters are to be checked annually by specialists for leaks and for safety against flashback.
- In each instance make sure that the propane gas and oxygen bottles are correctly set up by your authorised gas-fitter!
- Before starting work each day check the system against damage to the tubes, obvious leaks and for cleanliness.
- When changing any parts of the system a specialist must check that installation has been carried out properly, that the system has no leaks, that it is clean and that there are no stoppages.
- Repairs to any components of the system must only be carried out by a specialist.
- Only original spare parts should be used (see spare parts list).
- It is advisable for the operator of the system to draw up

a suitable maintenance plan.

- On no account must flammable cleaning materials be used.

4. Transport and Storage

- The system must be stored in a dry atmosphere.
- When stored, the system must be protected from dirt.
- When stored, the system must be protected from mechanical damage.
- When stored, the system must be closed on both sides (pressure regulator, handpiece).
- When transporting the system, suitable packaging must be used in order to prevent mechanical damage, corrosion and getting the system dirty.

5. Operation of the burner system

- Remove the connection-sided caps before installation.
- After your gas burner system has been connected to the relevant supply by your authorised gas-fitter remove the thread-cutting protective cap from the handpiece.
- The regulator valves (C and D) on the handpiece must be closed.
- Insert the relevant torch insert into the handpiece and secure by putting on the screw cap.
- Make sure that your torch insert is approved for use with both the type of burner gas you are using and your oxidising agent. The respective authorisation and working pressures are stamped on the lower end of the torch insert:

P = propane gas

O = oxygen

M = natural gas

D = compressed air

Attention:

The torch's injector nozzle must have o-rings and these must be undamaged!

- Adjust the working pressure to the pressure given on the torch insert as follows:
 1. First make sure that the pressure regulator valves (C and D) on the handpiece (orange/black) are closed.
 2. Open the shutoff devices on the gas supply (propane gas).
 3. Now open the compressed air stop-valve (B) on the pressure regulator and, using the pressure regulator screw (A), set the torch's working pressure (dynamic pressure).
 4. Now open the pressure regulator valve for compressed air (D) on the handpiece. Using the pressure regulator screw (A) on the pressure regulator adjust the compressed air pressure to the compressed air value given on the torch (hydraulic pressure).
 5. Close the pressure regulator valve on the handpiece.
 6. Follow points 3 to 5 to set the propane gas adjustments.
- 7. **Your burner is now ready to use.**

5.1 Igniting the flame

- First open the compressed air regulator valve (D) on the handpiece by $\frac{1}{4}$ of a turn.
- Then open the propane gas regulator valve (C) on the handpiece by $\frac{1}{4}$ of a turn.

Attention:

Carrying out the above in the opposite order may produce a flashback! If, through improper use of the burner, flashback occurs (i.e. no visible flame but an audible whistling noise) you must immediately close first the propane gas valve (C) and then the compressed air valve (D) on the handpiece!

To ignite the flame following the instructions below you must use a suitable lighter.

- Before igniting the burner let the compressed air/propane gas mix flow carefully out for approx. five seconds so that the hoses are bled of air.
- Ignite the flame as follows:
 - > Hold the lighter directly onto the torch head from the side.
 - > Make sure that the flame is ignited:
 - a) facing away from you,
 - b) away from the immediate vicinity of people and
 - c) pointing away from any easily inflammable objects.

The fine adjustment of the flame must only be carried out via the propane gas regulator valve (C) on the handpiece.

5.2 Extinguishing the flame

- When you have finished your work first close the propane gas regulator valve (C) on the handpiece and then the compressed air regulator valve (D) on the handpiece.

Attention:

Carrying out the above in the reverse order i.e. first compressed air then propane gas, may lead to flashback!

5.3 Turning off the system

- First shut off the flow of propane gas, then the flow of compressed air via valves C and D on the handpiece.
- Now close the shutoff devices on the compressed air and propane gas bottles and/or main supply routes. With compressed air, for example, turn off the compressor.
- Once the propane gas supply on the bottle has been stopped, close the shutoff device (B).
- **When removing the air and gas from the system always let the burner gas flow out first, then the oxidising agent.**
- To bleed the system of gas open the propane gas regulator valve (C) on the handpiece as far as necessary until the manometer reading of the pressure reduction valve reads nil. Close the propane gas regulator valve again.
- Repeat the above process using the relevant parts for compressed air.
- Close the stop-valves for compressed air and propane gas on the pressure regulator (B).
- If longer interruptions of work are planned then the pressure reduction valve for propane gas on the pressure regulator should be relieved via the pressure regulator screw (A) until a spring load is no longer evident.
- If longer interruptions of work are planned the pressure regulator for compressed air can be disconnected from the compressed air supply to relieve the pressure.

6. Action on malfunctions

Malfunction	Action
Flashback (recognisable by a whistling noise, no visible flame, and the torch insert becomes hot at the base).	<ul style="list-style-type: none"> • close the gas valve (C) immediately, followed by the compressed air valve (D) on the handpiece.
Smell of Gas.	<ul style="list-style-type: none"> • close down the system and supplies / check supply tubes for damage or faulty connections. • aerate the room! • check for leaks using a leak detection spray (spray must be suitable for use with gas).
System will not ignite.	<ul style="list-style-type: none"> • the burner nozzle is blocked > clean the nozzle. • the tube is blocked > check the tube and clean it. • the gas pressure is too great > set the gas pressure to the correct value. • the gas supply has run out > check the bottle.

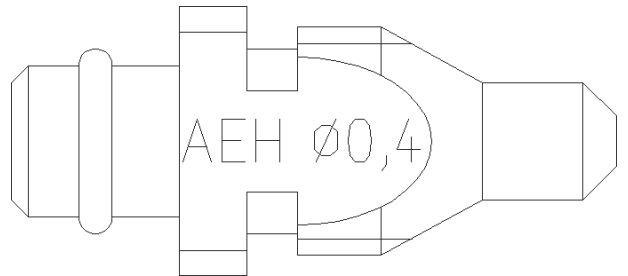
7. Technical Data (System 956-0000 with relevant torch insert)

	968-1500	968-1300
Pressure propane gas	0.5 bar	1 bar
Pressure compressed air	2 bar	2 bar
max. temperature	1,750° C	1,750° C
LWA (sound emission level)	70 dB (A)	76.9 dB (A)
Nozzle flow-through	P 30 g / h D 550l/h	P 140 g / h D 2,800l/h
Injector nozzle diameter *	0.7 mm	1.5 mm

*Injector nozzles are supplied with diameter markings.

**Weight of the Melting System 2,
Art. No. 956-0000 = 3.4 kg.**

Example of the injector nozzle markings:



Each system is subjected to careful in-house quality control and assembly procedures.

Subject to modifications.