



OPERATING INSTRUCTIONS

C.A.R.

Controlled Asphalt Replaster

TYP 30/275	TYP 60/275
TYP 90/100	TYP 120/125
TYP 120/150	TYP 150/150
TYP 150/200	TYP 60/75



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1. Liquid gas supply:

Connect the gas cylinders (2 cylinders à 11kg) an.

2. Commissioning of C.A.R. surfacer

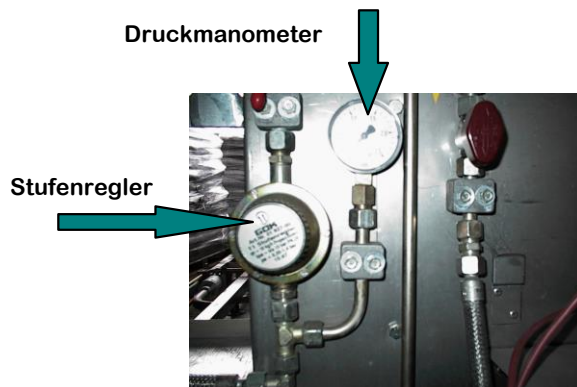
Open the valves at all the gas cylinders.

After opening of the cylinder valves, check the complete gas system for leakage (leak detection spray; soap suds) as per TRF.

Attention: Check gas conduits for leakage once a week.

Put the step controller for full load to step 11.

The pressure barometer shows about 1.5 bar (operating pressure).



C.A.R. Temperature control – Installation

Before starting the connection work, put the operating selector switch to “OFF”.

Connect the test probe and the solenoid valve expertly to the connections provided.

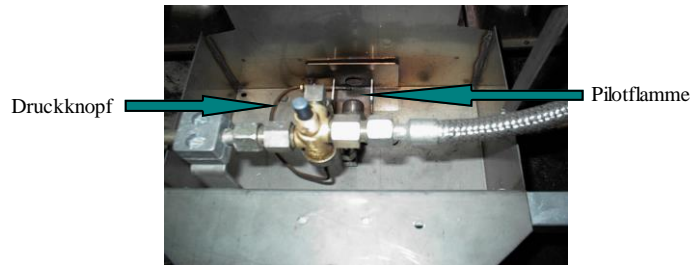
Install the C.A.R. temperature control into the device provided to this effect.

Install the infrared sensor into the holding device provided.

Connect the cable (red) to the plug for the solenoid valve and the plug of the infrared sensor to the control unit.

Ignition of pilot burner (pilot flame):

Push press pin of safety pilot, keep it pressed (blue push-button). Ignite pilot flame using the slow match. Release the press pin after about 10 seconds.



The heating system is now ready for operation:

Mount the device on the location.
Open ball valve to the radiant heaters.

C.A.R. Safety indications

The C.A.R. controller is exclusively to be used in connection with the components recommended by the manufacturer.

The C.A.R. controller is exclusively to be connected to the relevant heater using the original loom of cables supplied by the manufacturer.

The C.A.R. controller is not suitable for operation in the pouring rain.

Application

The C.A.R. controller is a two-step controller which switches on and off the gas flame in connection with a solenoid valve in a gas heater.

The surface temperature thus generated is measured by an optical temperature test probe and adjusted to a nominal value preset.

Scope of delivery:

- C.A.R. controller
- Test probe
- Solenoid valve – connection cable
- Motor vehicle supply cable
- Housing key

Accessories

- Mains charging cable EU or US version

Technical Data

Operating voltage	12 V DC
Max. operating current consumption	600 mA
Storage battery – Nominal data	12 V DC/ 5,7 Ah
Charging voltage	230 V (115 V) AC/ 50....60 Hz
Max. power consumption from mains	20 W
Motor vehicle supply voltage	11....16 V DC
Max. current consumption from motor vehicle mains	800 mA
Solenoid valve – Nominal data	12 V DC/ 6 W
Admissible ambient temperature	-10.... + 60 °C
Protection	IP54

Dip switch SW1 (in housing!)

Dip - SW 1	Dip – SW 2	Dip – SW 3	Hysterese	Einheit
off	off		10°	
on	off		20°	
off	on		30°	
on	on		40°	
		off		C
		on		F

Operation.



**The perfect functioning of this device is only guaranteed if these operating instructions are strictly adhered to.
 Our warranty ceases to apply in case of any inappropriate handling of the device!**

- Before starting the connection work, switch the electronics “OFF”. Connect the test probe and the solenoid valve expertly to the connections provided.
 - Press the “START” button for about 2 seconds. The display informs you of the nominal temperature switched on at the moment – unit is blinking!
 - Check the storage battery voltage – BATT EMPTY LED has to be OFF; with LED ON (red), the electronics has to be charged or has to be supplied via the mains power supply plug (12 V DC).
 - If you want to change the nominal temperature, simply turn the “ADJUST” button. The nominal temperature can be modified in 2° steps from 80°C to 250°C.
 - If you actuate the “OPERATE” button, the display informs you of the actual temperature measured at the moment – unit is not blinking! - OPERATION LED (green) lights up and the C.A.R. controller is ready for operation. This is signaled by the HEATING LED (yellow). The actual temperature can be read at the display.
 - In order to be able to correct the nominal temperature, simply turn the “ADJUST” button in the direction desired. The display switches over and indicates the nominal temperature – unit is blinking.
- Now, adjust the new nominal temperature and release the button.
 After about 3 seconds, the display returns – unit is not blinking!

The new nominal temperature is now switched on. If the desired nominal temperature is achieved at the measuring point, the C.A.R. controller automatically switches off the gas heater.

- If the voltage of the storage battery drops until BATT EMPTY LED lights up (red), the C.A.R. controller is out of operation. "LO" is shown on the display – the total discharge protection of the storage battery is active.

Switch the operating selector switch to "OFF".

If you want to maintain operation, connect the C.A.R. controller to the cigarette lighter of a motor vehicle having a mains power supply of 12 V (passenger car) using the motor vehicle supply cable supplied.

A higher mains power supply voltage (e.g. mains power supply of 24 V with trucks) leads to damages to the C.A.R. controller.

The storage battery is charged at the 230 V (115V) AC mains using the charging cable (option).

During the charging process – display shows "L LLLL" – no operation is possible.

- If the test probe is defective or the supply line to the test probe is interrupted, "SL" is shown on the display – further operation of the device is not possible.

3. Final disconnection

Close all the valves at the gas cylinders.

Switch control off.

4. General indications:

When repairing damaged spots, special attention has to be paid to the fact that the material is not dismantled up to the limit edge.

In order to get a frictional connection between the old and the new asphalt, the surface to be treated should be well heated and free from any impurities.

The C.A.R. surfacer is only to be operated by trained and instructed expert staff.

When the asphalt is wet, humidity can deposit on the infrared eye and can thus lead to faulty measurement. In this case, clean the eye with a dry and clean cloth.

Always store the C.A.R. surfacer in a dry place.

When humidity gets under the radiant heaters, it may happen that part of the radiant heaters does not ignite.

Attention:

Use the bypass conduit only in case of failure of the control unit.
When switching on the bypass conduit, the automatic control of the temperature no longer takes place => **the asphalt can overheat !!**

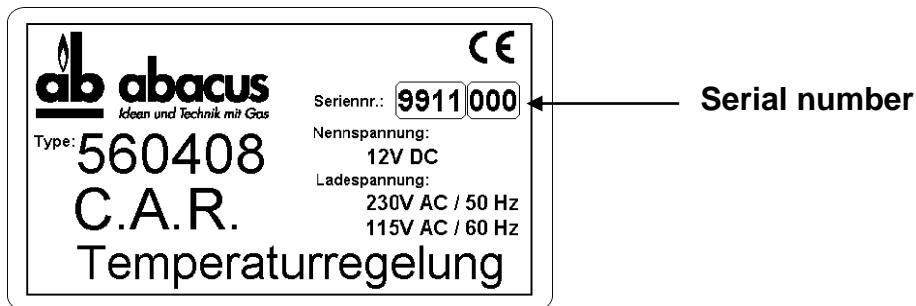
It is prohibited to transport the C.A.R. surfacer the gas cylinders connected. The connection hoses of the gas conduit have to be fastened.



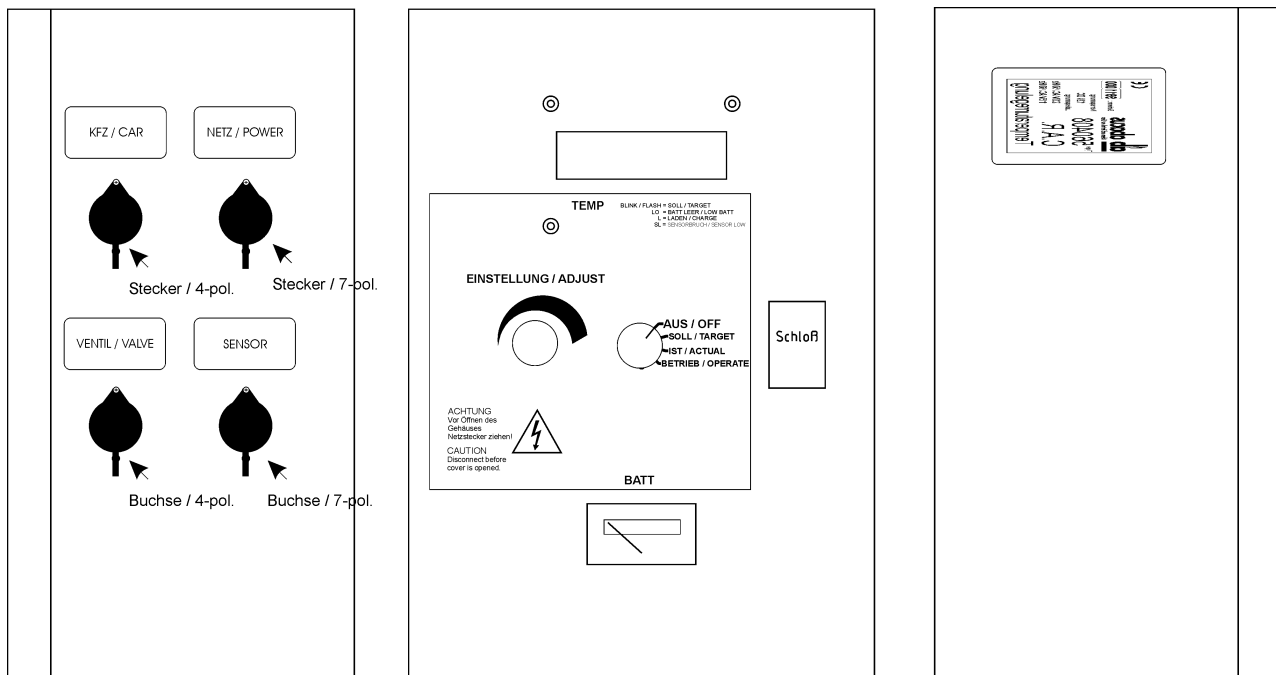
5. Technical Appendix

Identification plate

Always state the serial number when looking for the reasons of malfunctions and with queries:



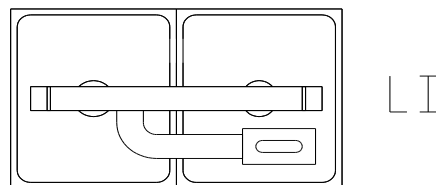
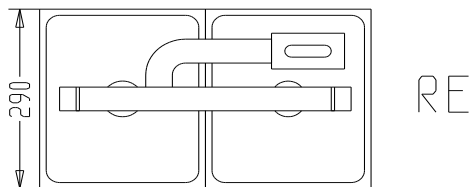
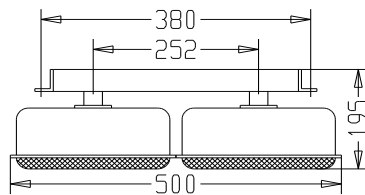
C.A.R. Temperature control



All-metal burner ST-SL 14 B

Version: Version Wide (Burner head in cross direction)

Possible variants :
 Injector connection right (RE)
Item number 080 110 1114
 Injector connection left (LI)
Item number 080 110 1014



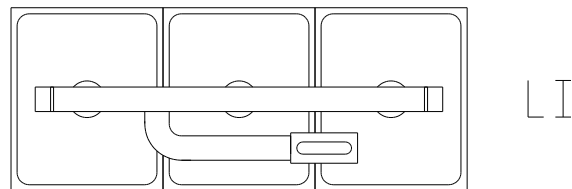
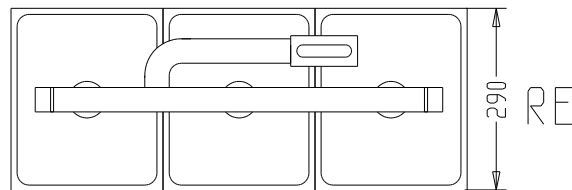
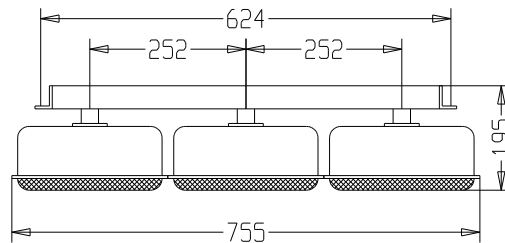
Technical Data:

Type of gas:	Liquid gas Propane-Butane
Operating pressure:	0.5-1.5 bar
Heating capacity:	14 kW (with 1.5 bar)
Gas consumption:	about 1.0 kg/h
Nozzle:	Ø 0.75 mm
Weight:	about 5.5 kg

All-metal burner ST-SL 18 B

Version: Version Wide (Burner head in cross direction)

Possible variants: Injector connection right (RE)
Item number 080 110 1118
Injector connection left (LI)
Item number 080 110 1018



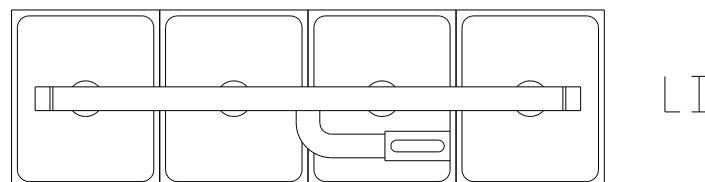
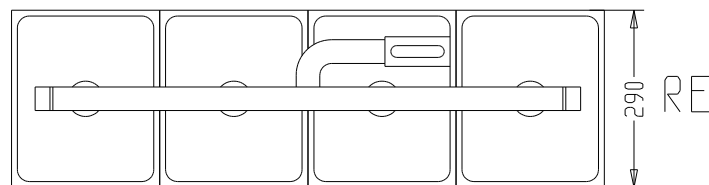
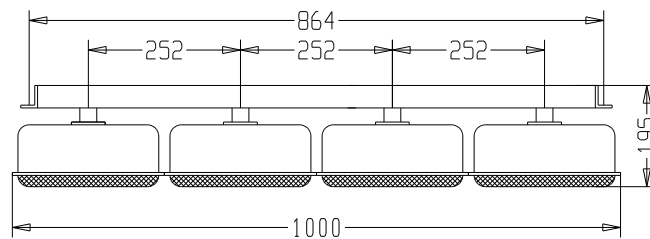
Technical Data:

Type of gas:	Liquid gas Propane-Butane
Operating pressure:	0.5-1.5 bar
Heating capacity:	18 kW (with 1.5 bar)
Gas consumption:	about 1.4 kg/h
Nozzle:	Ø 0.90 mm
Weight:	about 8.0 kg

All-metal burner ST-SL 26 B

Version: Version Wide (Burner head in cross direction)

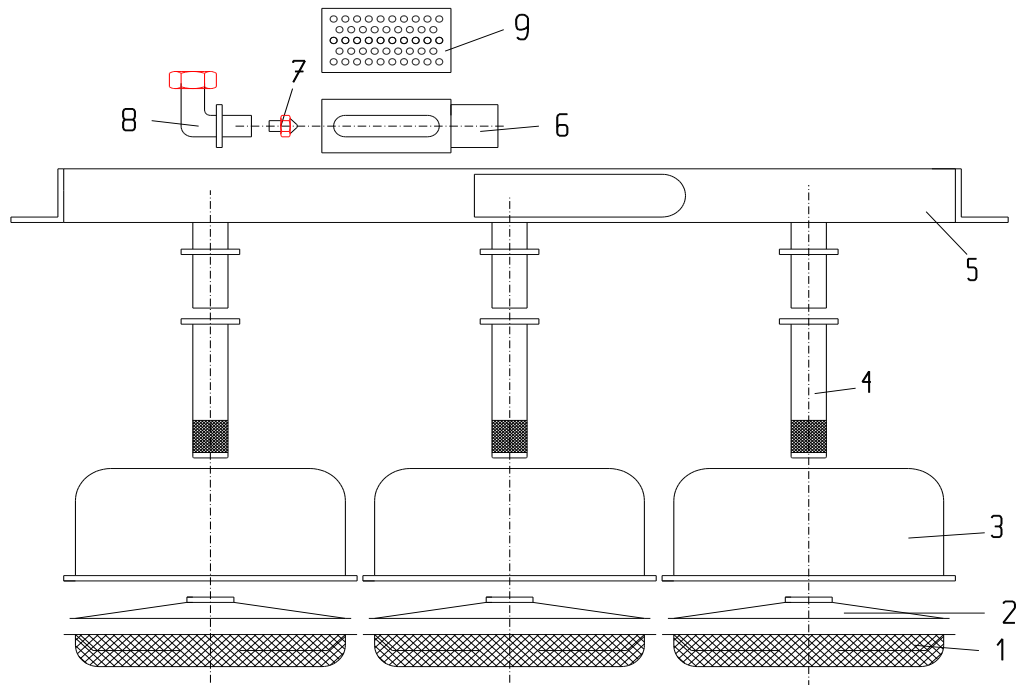
Possible variants: Injector connection right (RE)
Item number 080 110 1126
Injector connection left (LI)
Item number 080 110 1026



Technical Data:

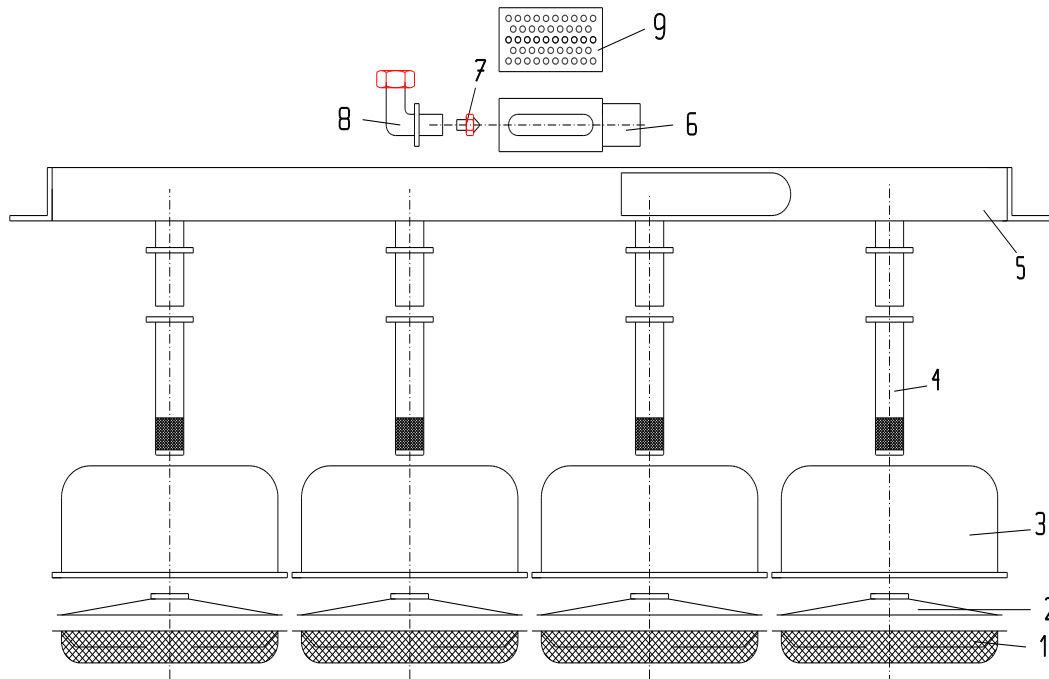
Type of gas:	Liquid gas Propane-Butane
Operating pressure:	0.5-1.5 bar
Heating capacity:	25 kW (with 1.5 bar)
Gas consumption:	about 2.0 kg/h
Nozzle:	Ø 1.15 mm
Weight:	about 10.0 kg

All-metal burner ST-SL 18 Spare parts sheet



<u>Position</u>	<u>Item number</u>	<u>Designation</u>
1	3108318	Protection grill
2	3108319	Reflector
3	3108323 3108320	Radiating trough with insulating material
4	3108215	Spark plug
5	905254013 905154013 905254014 905154014	Burner pipe 18B/li Burner pipe 18B/re Burner pipe 18L/li Burner pipe 18L/re
6	905140004	Injector SL 18
7	57032	Nozzle
8	57484	Burner nozzle assembly
9	976870	Flame protection

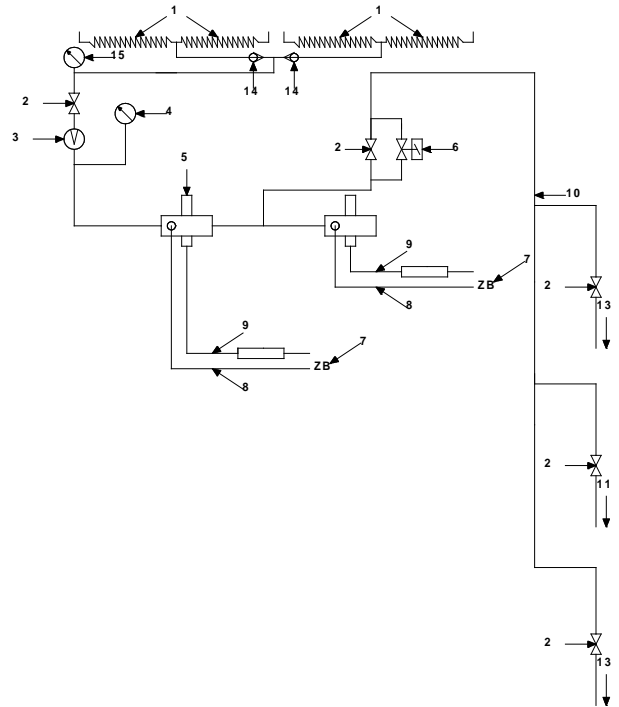
All-metal burner ST-SL 26
Spare parts sheet



<u>Position</u>	<u>Item number</u>	<u>Designation</u>
1	3108318	Protection grill
2	3108319	Reflector
3	3108323 3108320	Radiating trough with insulating material
4	3108215	Spark plug
5	905254015 905154015 905254016 905154016	Burner pipe 26 B/li Burner pipe 26 B/re Burner pipe 26 L/li Burner pipe 26 L/re
6	905151106	Injector SL 26
7	57032	Nozzle
8	57484	Burner nozzle assembly
9	976870	Flame protection

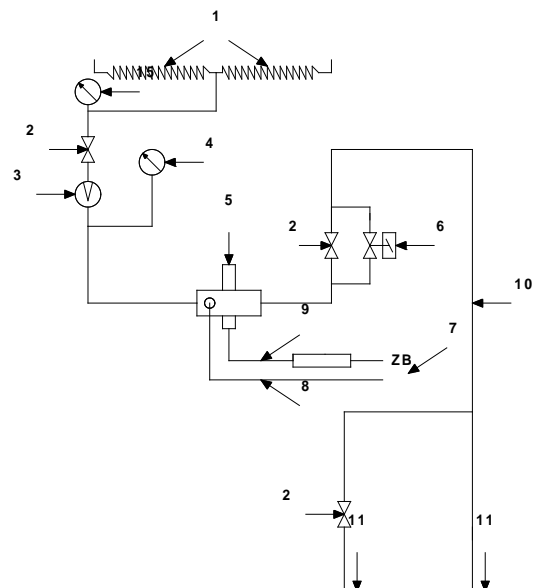
Flow chart
C.A.R. 30/275

Number	Designation
1	2-cylinder connection ST-ZB
2	Ball valve 3/8"
3	11-step controller
4	Pressure gauge 0-2.5bar, Operating pressure
5	Safety pilot B3C
6	Solenoid valve 12V
7	Pilot burner Sievert
8	Pilot burner pipe Ø 6mm
9	Thermocouple element 320 8/9
10	Main pipe 12 Ermeto
11	Burner stripe 18B /re
13	Burner stripe 26B /re
14	Non return valve
15	Pressure gauge 0-25 bar, supply pressure



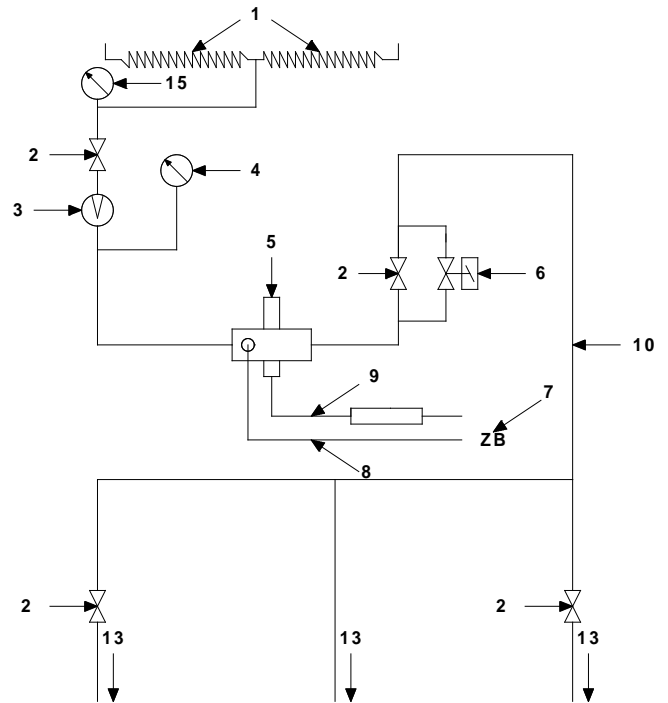
C.A.R. 60/75

Number	Designation
1	2-cylinder connection ST-ZB
2	Ball valve 3/8"
3	11-step controller
4	Pressure gauge 0-2.5bar, Operating pressure
5	Safety pilot B3C
6	Solenoid valve 12V
7	Pilot burner Sievert
8	Pilot burner pipe Ø 6mm
9	Thermocouple element 320 8/9
10	Main pipe 12 Ermeto
11	Burner stripe 18B /re
15	Pressure gauge 0-25 bar, supply pressure



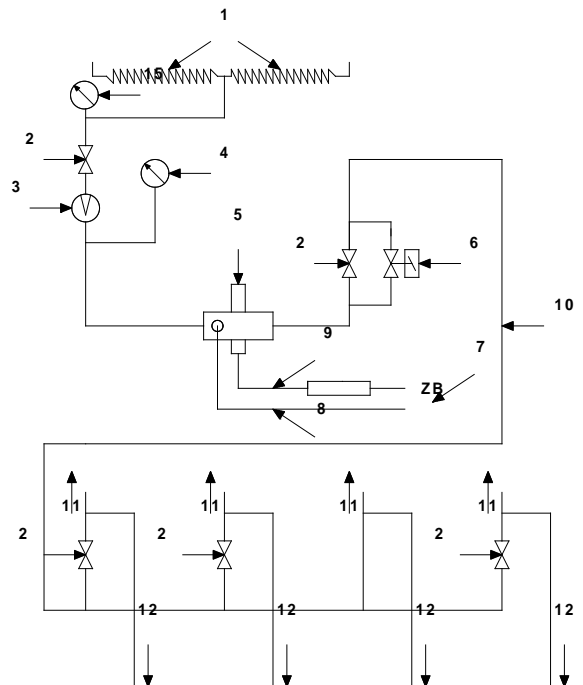
C.A.R. 90/100

Number	Designation
1	2-cylinder connection ST-ZB
2	Ball valve 3/8"
3	11-step controller
4	Pressure gauge 0-2.5bar, Operating pressure
5	Safety pilot B3C
6	Solenoid valve 12V
7	Pilot burner Sievert
8	Pilot burner pipe Ø 6mm
9	Thermocouple element 320 8/9
10	Main pipe 12 Ermeto
13	Burner stripe 26B /re
15	Pressure gauge 0-25 bar, supply pressure



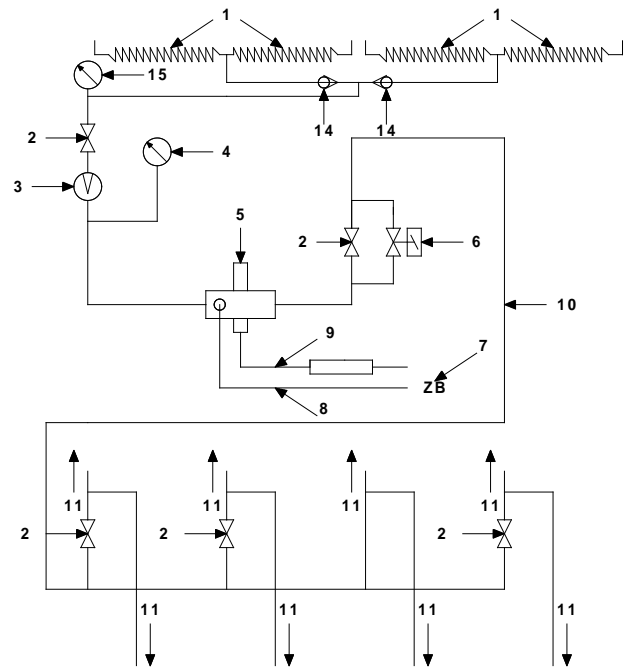
C.A.R. 120/125

Number	Designation
1	2-cylinder connection ST-ZB
2	Ball valve 3/8"
3	11-step controller
4	Pressure gauge 0-2.5bar, Operating pressure
5	Safety pilot B3C
6	Solenoid valve 12V
7	Pilot burner Sievert
8	Pilot burner pipe Ø 6mm
9	Thermocouple element 320 8/9
10	Main pipe 12 Ermeto
11	Burner stripe 18B /re
12	Burner stripe 14B /re
15	Pressure gauge 0-25 bar, supply pressure



C.A.R. 120/150

Number	Designation
1	2-cylinder connection ST-ZB
2	Ball valve 3/8"
3	11-step controller
4	Pressure gauge 0-2.5bar, Operating pressure
5	Safety pilot B3C
6	Solenoid valve 12V
7	Pilot burner Sievert
8	Pilot burner pipe Ø 6mm
9	Thermocouple element 320 8/9
10	Main pipe 12 Ermeto
11	Burner stripe 18B /re
14	Non return valve
15	Pressure gauge 0-25 bar, supply pressure



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