

5.9 Gas Connection (if required)

5.9.1 Requirements



When operating on gas, the machine emits combustion fumes directly into the surroundings where it is being used; therefore, gas-powered machines must not be installed in rooms with a volume of less than 12 m³, as described by the standards in use. In closed rooms, always provide ventilation openings to release any possible gas leaks.

Do not under any circumstances attempt to light the gas without first installing the proper injector.

Do not operate the gas burners when the boiler is empty.



FOR ITALY

The system and installation of the devices must be performed in conformance with the current standards UNI-CIG 8723 of the Ministerial Decree dated 12 April 1996.



FOR GERMANY

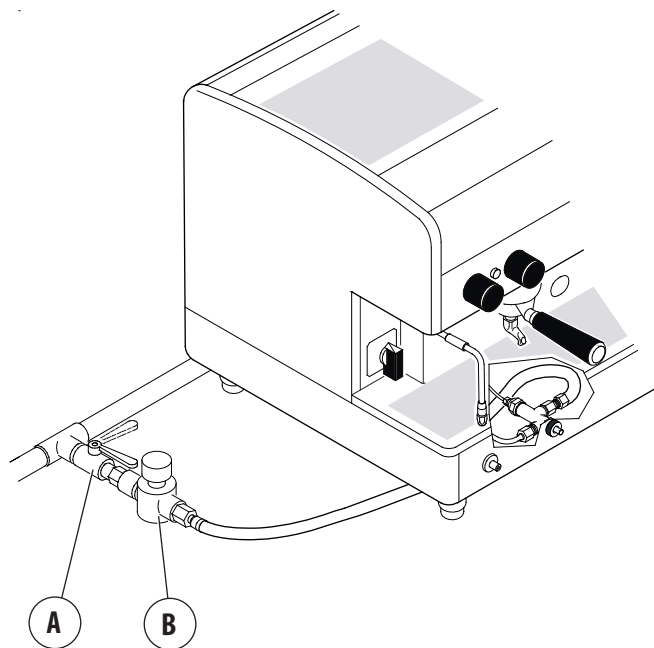
The following requirements must be observed for installation:

- Rules in terms of work area and the fire department;
- Rules in terms of the work place;
- Technical rules for suction in terms of fireproofing;
- Work sheet DVGW G634 "technical rules for stoves-gas devices";
- Work sheet DVGW G600 "technical rules for gas installations";
- Technical rules (TRF) for installation with liquid gas;
- Rules in terms of accident prevention;
- Rules of the Organization that distributes the gas.

5.9.2 Gas system connection

To perform the connection of the gas system, proceed as follows:

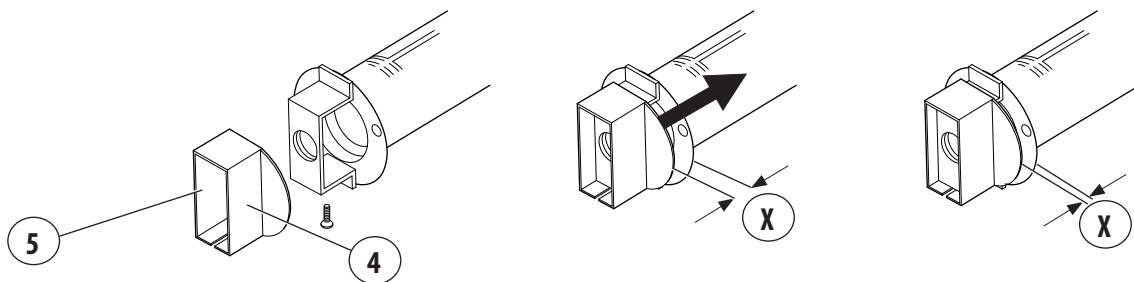
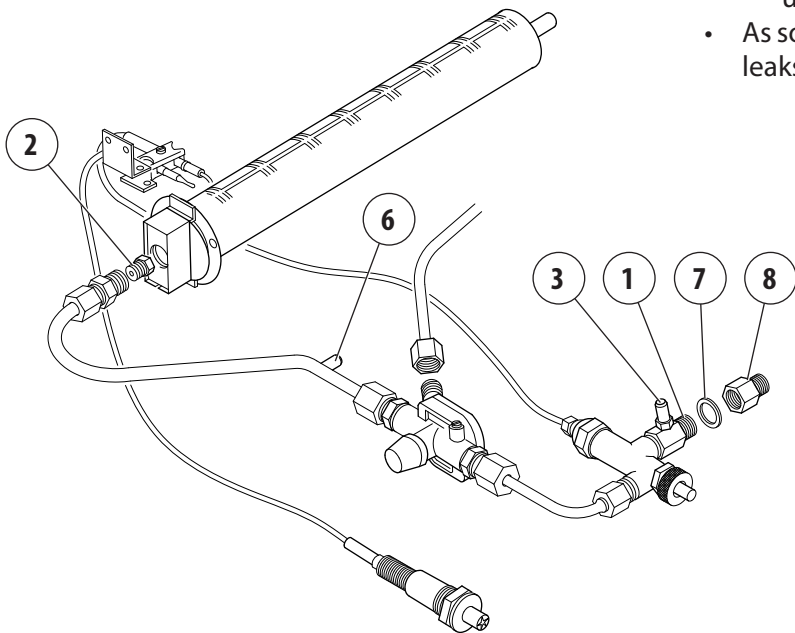
- Install a cut-off cock upstream of the machine (**A**);
- install a pressure reducer upstream of the gas system (**B**);
- pipe connections of the gas to the machine must be made in accordance with current standards in the country of installation using either a flexible or rigid hose.



- In case of connection with a hose, follow the indications below:
 - Use a hose that meets the standards in use (it is important to replace it periodically as indicated on the tube stamping);
 - The hose must have a maximum length of 1 metre;
 - fix the hose to the connector (1) if necessary, install the conic connector (8) and its seal (7);
 - the hose must not be placed near potential heat sources, they must not reach a temperature higher than 50 °C.
 - the hose must not be subjected to traction or twisting stress, and they must not have any kinks in them. It must be possible to inspect them along their entire length, and they must not come into contact with sharp objects or sharp corners.



If you need to connect the hose to the machine, we supply a conic fitting (8) with seal (7) to be installed on the fitting cylinder (1).



- When connecting with a pipe: connect the Ø8 copper pipe to the 1/4 gas connection (1);
- check that the type of gas utilised corresponds to the one indicated on the gas data plate of the machine. In the case of a different gas, replace the injector (2) as indicated in the Gas Table in par. 5.9.3 on page 27 and replace the "Preparing gas" label on the boiler cover with that corresponding to the gas used (supplied with the injector). Ensure correct supply pressure by connecting a manometer to the fitting (3) and check the air pressure between the input connector to the injector by connecting a pressure gauge (6) see par. 5.9.4 on page 28 ;
- check that the air aspiration height (X) corresponds to that indicated in the Gas Table see par. 5.9.3 on page 27 ;
- to carry out any adjustments proceed as follows:
 - loosen the screw (4);
 - move the suction cap (5) to the required height;
 - fix the screw (4);
 - if, when starting the burner the colour of the flame is not blue, slightly modify the air aspiration height until the correct colour is obtained.
- As soon as connection is complete, check for any gas leaks by placing a soapy solution on all connections.

5.9.3 Gas Table

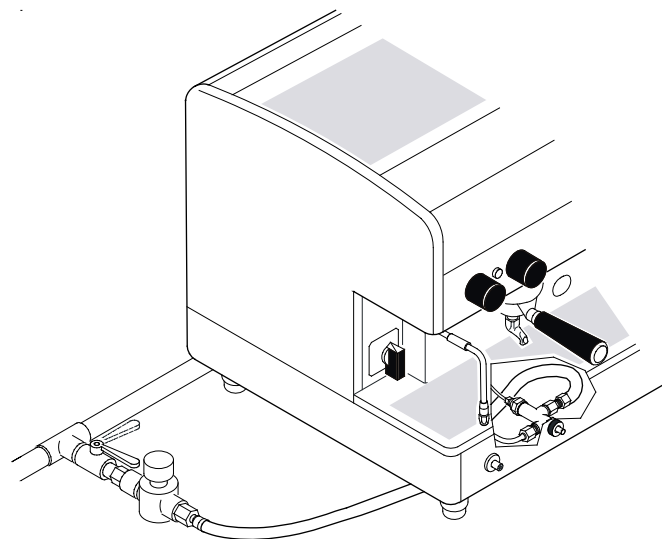
Indications for the installation of the appropriate injector and the adjustment of the air suction cap

	Gas type	Supply pressure	Injector inlet minimum pressure	Burner injector hole	Aspiration air cap adjustment	Minimum power Q min	Maximum power Q n	Maximum consumption	
MODEL:		mbar	mbar	1/100 mm	mm	Kw	Kw	m ³ /h	kg/h
1 Group	G20	20	1.7	100	1	0.47	1.67	0.177	-
	G25	20	1.7	110	1	0.47	1.67	0.177	-
	G25	25	2.4	100	1	0.47	1.55	0.164	-
	G30/31	28-30/37	3.5	60	3	0.47	1.40	-	0.110
	G30/31	50	3.5	60	3	0.47	1.80	-	0.142
2 Groups	G20	20	1.9	110	1	0.69	2.03	0.215	-
	G25	20	2.1	135	1	0.69	2.52	0.267	-
	G25	25	2.7	110	1	0.69	1.88	0.199	-
	G30/31	28-30/37	5.5	75	3	0.69	2.20	-	0.174
	G30/31	50	6.1	65	3	0.69	2.10	-	0.167
3 Groups	G20	20	2.3	135	1	1.16	3.06	0.323	-
	G25	20	2.3	145	1	1.16	2.91	0.308	-
	G25	25	3.5	135	1	1.16	2.85	0.302	-
	G30/31	28-30/37	6.1	80	3	1.16	2.51	-	0.199
	G30/31	50	11.3	75	3	1.16	2.84	-	0.225
4 Groups	G20	20	2.5	145	1	1.30	3.55	0.376	-
	G25	20	2.5	160	1	1.30	3.55	0.376	-
	G25	25	3.8	145	1	1.30	3.30	0.349	-
	G30/31	28-30/37	6.8	85	3	1.30	2.85	-	0.225
	G30/31	50	11.3	75	3	1.30	2.85	-	0.225

5.9.4 Gas adjustment

To perform the adjustment of the gas proceed as follows:

1. Switch on the gas system;
2. remove the locknut (A) and loosen the regulator screw (B) by 2 turns;
3. act on the regulator pin (C) in order to have the maximum opening for the flow of gas;
4. wait for boiler pressure to reach 1.4 bar (see boiler gauge);
5. act on the regulator pin (C) and turn it clockwise until the burner flame is barely visible (pilot flame) and enough to maintain the thermocouple active; check the minimum pressure through a gauge located on the joint (D);
6. wait for the pressure in the boiler to reduce down to 1 bar (see boiler pressure gauge);
7. act on the adjustment screw (B) turning it clockwise until the flame is up to maximum;
8. tighten the locknut (A) to lock the screw of the regulator (B);
9. wait for the operating pressure of the boiler indicated on the pressure gauge of the machine, to reach the working value of about 1.1-1.3 bar.



If you want to increase or decrease operating pressure in the boiler, proceed as above, varying the parameters as follows:

TO DECREASE PRESSURE

- set the minimum to 0.9 bar and the maximum to 1.3 bar. You will obtain pressure in the boiler of about 1.0 - 1.2 bar.

TO INCREASE PRESSURE

- adjust the minimum to 1.1 bar and the maximum to 1.5 bar. You will obtain a pressure in the boiler of 1.2 - 1.4 bar (this is the maximum recommended pressure limit).

To check the pressure at the inlet of the injector, connect a pressure gauge to the connection (D).



The gas system is useful in heating the water in the boiler. It does not, except in special cases, substitute the electrical heating system, but rather works along with it. For machines with levers, operation may be either electric or gas.

