

# ALUMINIUM BURNERS BODY

## SERIES EMB-1A & 2A SIK

### FEATURES

- Mixer body
  - Gas inlet block
  - Flame tube
  - Gas tube
  - Combustion head
  - Mounting flange
  - Cold air operation
  - Capacity range
  - Air and gas pressures at burner
  - Adequate to different types of gases
- Excess air
  - Excellent flame stability with excess air, excess gas stoichiometric combustion
  - Low NO<sub>x</sub> levels
  - Wide turndown range
  - Easily replaced electrodes
  - Separated air and gas inlets, nozzle mixing, no flashback
  - Light, small, compact burners equipped with micrometric gas flow adjuster, spark ignition electrode and detection electrode, peep-sight, calibrated orifice plate flow meters to measure air and gas flows.

aluminium  
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silicon carbide  
AISI303.  
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iron  
50-60°C  
40 Kw/80 Kw  
45 mbar  
CH<sub>4</sub>/LP  
Propane/etc.  
over 800 %.



### APPLICATION RANGE

- Fiber insulated furnaces
- Ceramic baking furnaces
- Treating furnaces
- Tunnel type furnaces
- Truck-hearth furnaces

### DESCRIPTION

The metallic burners of the series EMB-A-SIK are nozzle-mix burners. Gas and air are mixed only at the nozzle, thus flashback is prevented. The air stream as well as the particular shape of the silicon carbide flame tube create some flame allowing for high heat penetration in the combustion chamber. Maximum ratings are obtained with

45 mbar air and gas pressure; operation with 800% excess air is possible when necessary. The burner may be custom-tailored both from a construction and functional point of view (kind of gas, nozzle, uni-rod spark, etc.). Please contact our commercial office for any request.



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## INSTALLATION

Metallic burners EMB-A-SIK are supplied with an iron, mounting flange. Avoid mounting with flame up which may cause condensation resulting in ignition and detection problems. The furnace refractory should be set to leave some room on all sides of the block. This space

should be packed with refractory material, for example ceramic fiber, to allow for expansion of the walls (see technical notice). Air and gas inlets may be easily rotated by 90° and are equipped with threaded or welding flanges.

## IGNITION AND FLAME DETECTION

Burner ignition is achieved by a direct spark ignition electrode of the WAND series. Flame detection is done via a particular WAND electrode which may be the same as the ignition or a different one. In this case we recommend to choose some adequate flame control devices

of the series ESTRO and an adequate low-consuming ignition transformer. Flame detection systems are required on all burners with furnace temperatures below 750°C.

Model	Ignition with pilot burner		Ignition with electrode	
	Igniter	Detector	Igniter	Detector
EMB-1A-SIK	(not foreseen)	(not foreseen)	Wand	Wand
EMB-2A-SIK	(not foreseen)	(not foreseen)	Wand	Wand

## CAPACITY TABLE

Model	Air/gas pressure mbar	Capacity kW @ 30° C (!) stoichiometric ratio	Capacity kW @ 30 °C 30% excess air
EMB-1A-SIK	45	40	28
EMB-2A-SIK	45	80	55

## SILICON CARBIDE OPTIONS

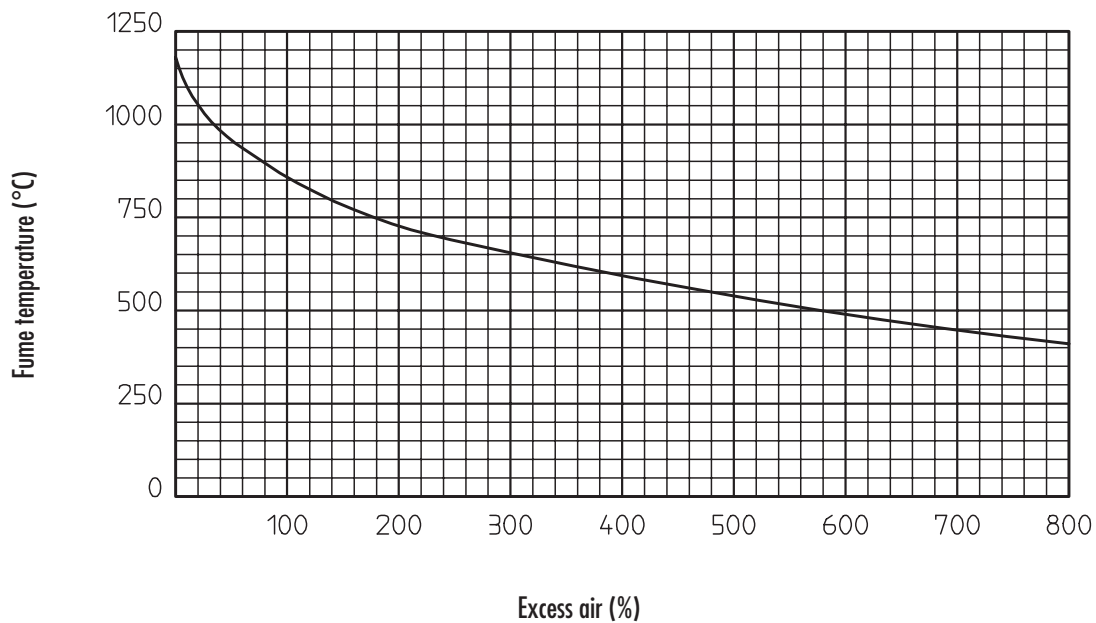
Model	Type of fuel (*)	Flame length mm	Diameter of flame outlet mm	Exhaust outlet velocity (m/s) @ 1,500°C						
				at 0 m	at 0.5 m	at 1 m	at 1.5 m	at 2 m	at 2.5 m	at 3 m
EMB-1A-SIK	L	300÷400	60	30	17	9.1	6	5	4	3
	M	300÷400	50	40	20	10	7	5.5	4.5	4
	H	300÷400	40	60	25	13	9	7	5.5	4.5
EMB-2A-SIK	L	400÷600	60	55	35	18	13	9	7.5	6
	M	400÷600	50	80	45	22	15	11	9	7.5
	H	400÷600	40	120	55	28	18	14	11	10

Flame lengths are approximate and refer to a natural gas-fired burner, in free air, operating with stoichiometric ratio and at nominal capacity (see (1) in the Capacity Table).

(\*)L: low-speed carbide; M: medium-speed carbide; H: high-speed carbide.

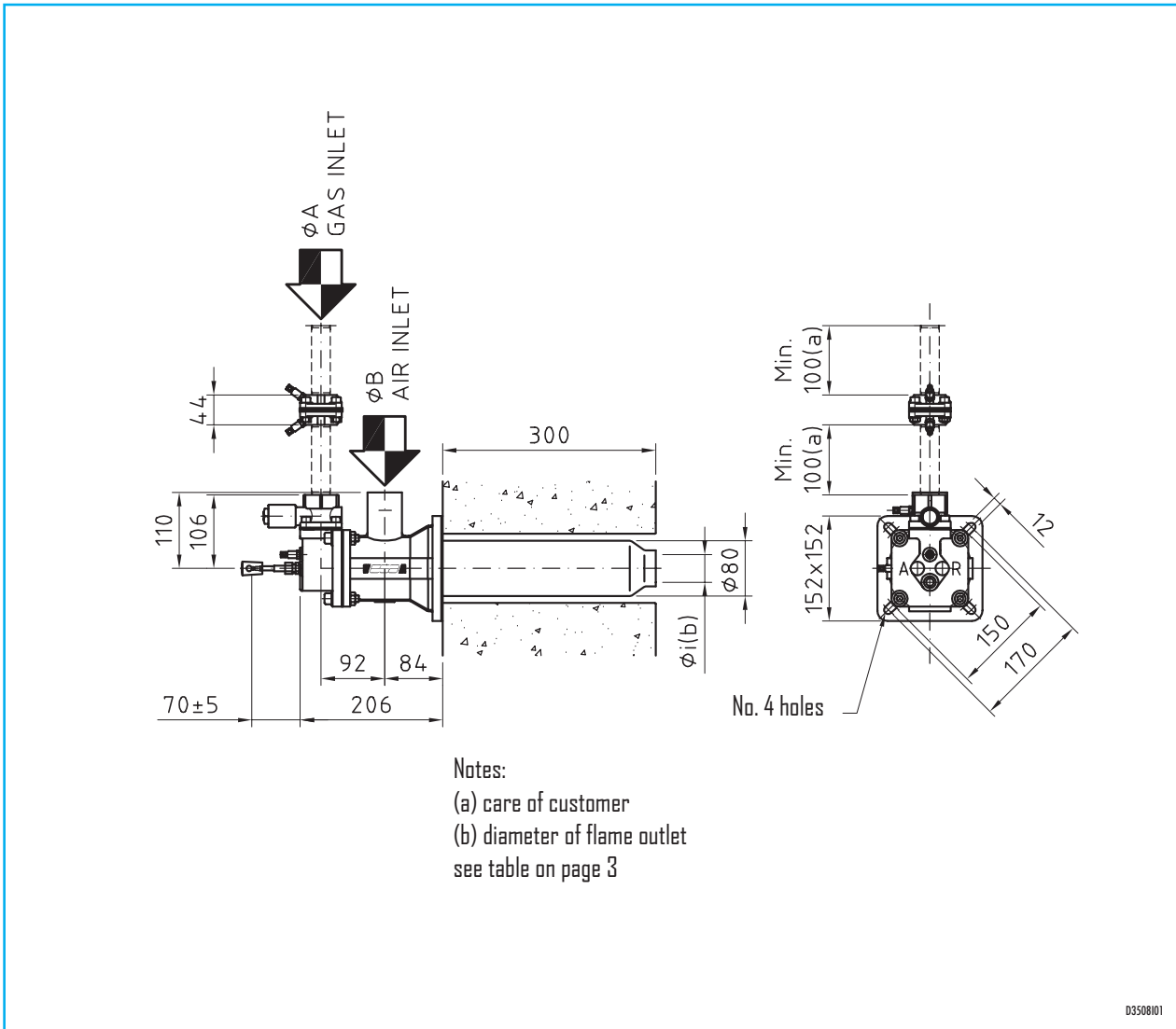
The table refers to combustion chambers with 0 pressure.

## EXCESS AIR AND FUME TEMPERATURE CHART



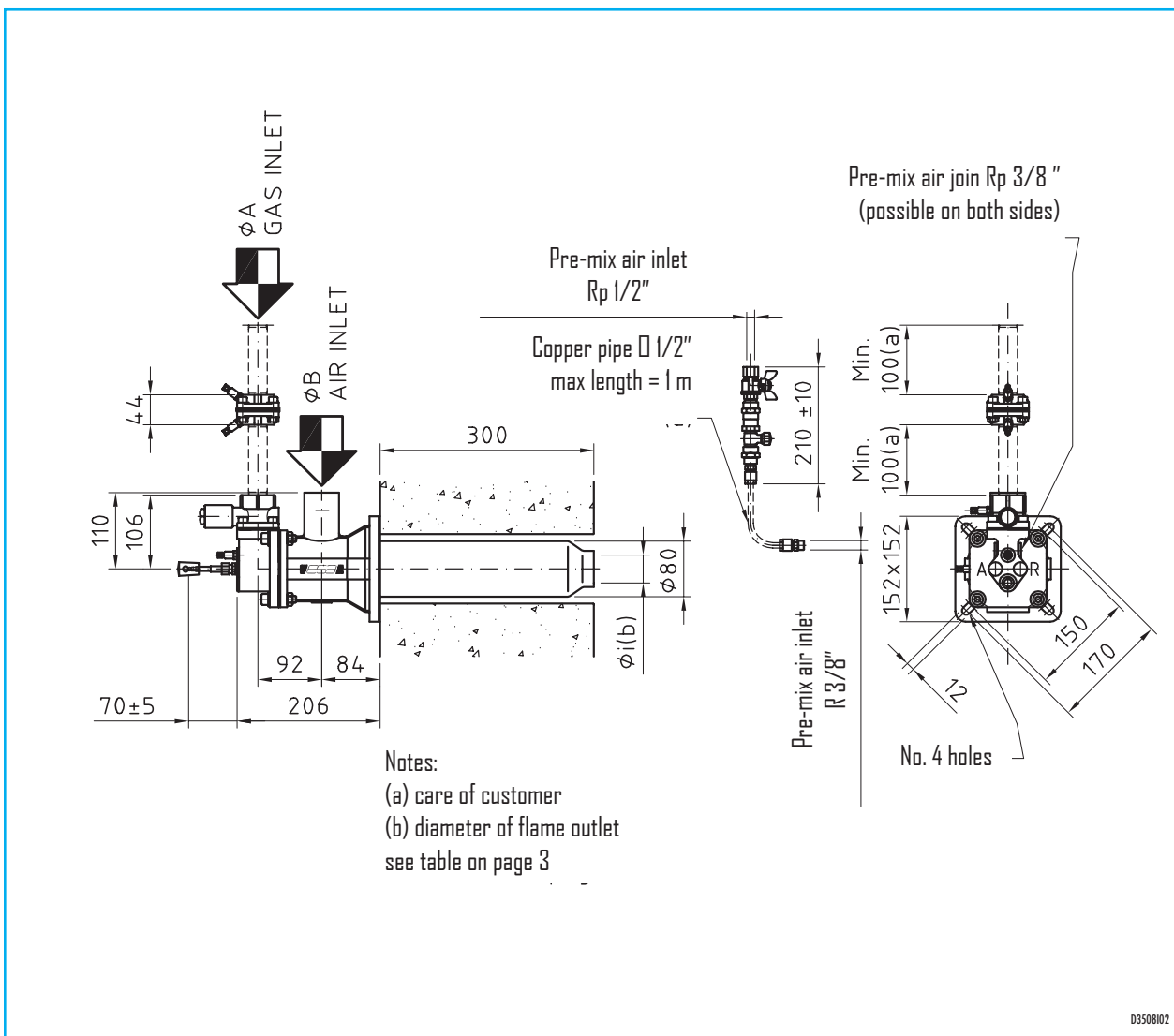
G350202

OVERALL DIMENSIONS CH4 VERSION



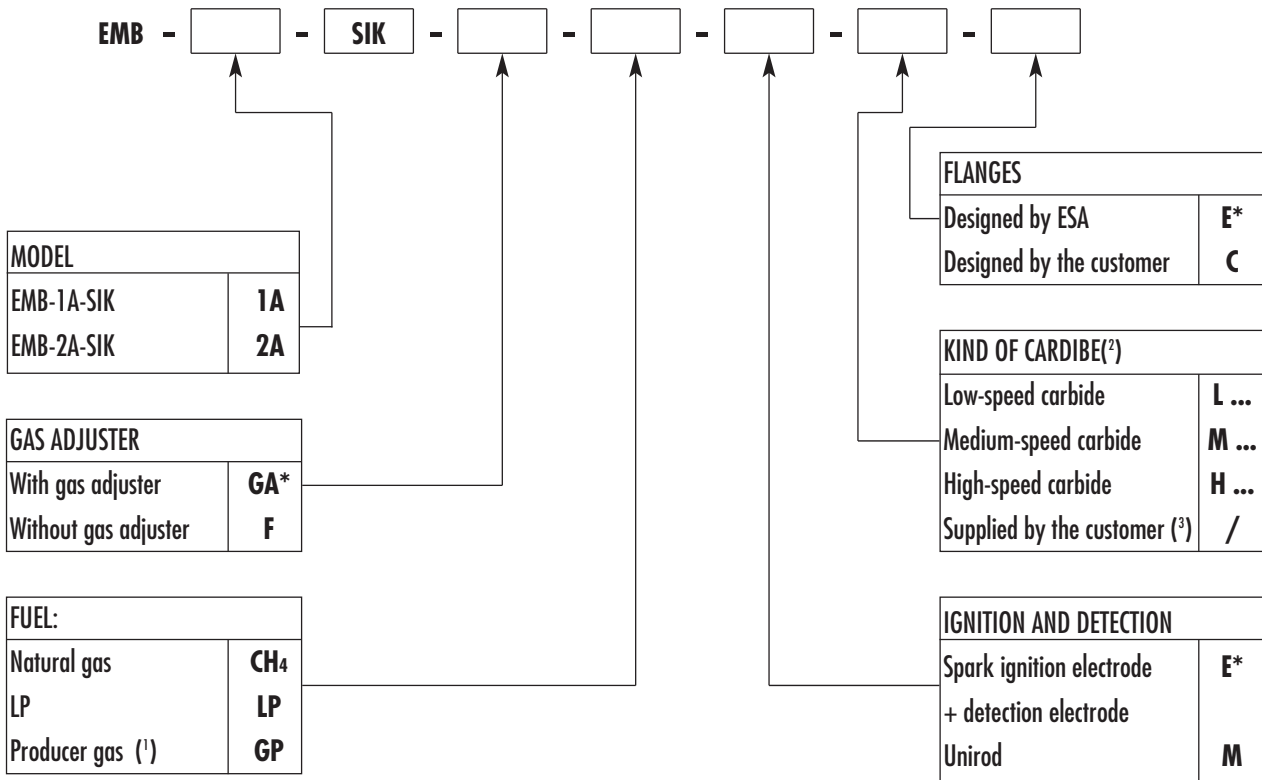
Model	Type of carbide	ø A	ø B
EMB-1A-SIK	L2	Rp 1/2"	Rp 1.1/4"
	M2	Rp 1/2"	Rp 1.1/4"
	H2	Rp 1/2"	Rp 1.1/4"
EMB-2A-SIK	L2	Rp 3/4"	Rp 1.1/4"
	M2	Rp 3/4"	Rp 1.1/4"
	H2	Rp 3/4"	Rp 1.1/4"

OVERALL DIMENSIONS LP VERSION



Model	Type of carbide	$\phi A$	$\phi B$
EMB-1A-SIK	L2	Rp 1/2"	Rp 1.1/4"
	M2	Rp 1/2"	Rp 1.1/4"
	H2	Rp 1/2"	Rp 1.1/4"
EMB-2A-SIK	L2	Rp 1/2"	Rp 1.1/4"
	M2	Rp 1/2"	Rp 1.1/4"
	H2	Rp 1/2"	Rp 1.1/4"

ORDERING INFORMATION - COMPLETE BURNER



The initials placed next to the asterisk identify standards

Notes:

- <sup>1</sup> Special execution carried out according to the features of the gas.
- <sup>2</sup> See the table "silicon carbide".
- <sup>3</sup> Please specify the construction features of the carbide used.



NOTE: Based on the company's policy aimed at a continuous improvement on product quality, ESA-PYRONICS reserves the right to bring changes to the technical characteristics of this device without previous notice. Our catalog updated to the latest version is available on our web site [www.esapyronics.com](http://www.esapyronics.com) and it is possible to download modified documents

WARNING: When operating, this combustion system can be dangerous and cause harm to persons or damage to equipment. Every burner must be provided with a protection device that monitors the combustion. The installation, adjustment and maintenance operations should only be performed by trained and qualified personnel.