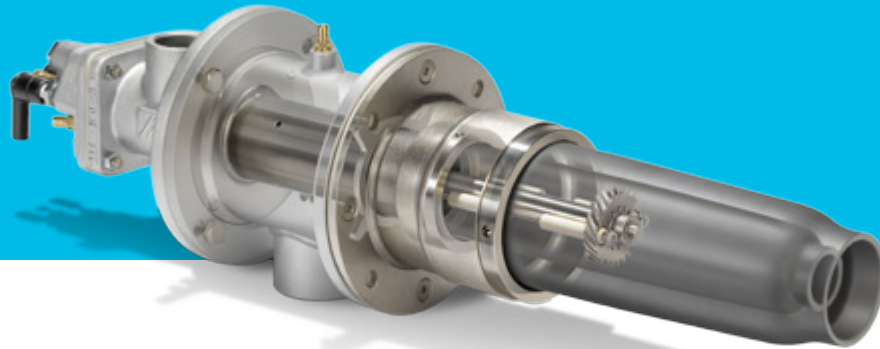


Annular excess air burner for gas BIC..R with annular excess air burner housing RSG

Product brochure · GB
7.2.30 Edition 03.11

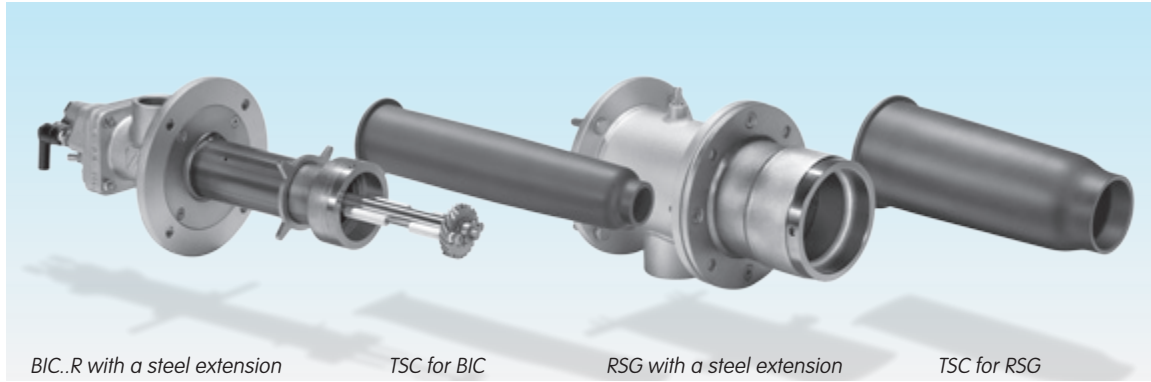


krom
schroder

- Output range: 15–360 kW
- Separate connection for secondary air
- Low pollutant emissions even with high excess air
- Suitable for high kiln temperatures
- Lightweight construction, no burner quarl required
- Adjustment of the flame outlet temperature to the required kiln temperature
- High outlet velocity possible even with low energy supply and kiln temperature
- Modulating control and impulse control possible
- Reliable electrical ignition and safe flame control thanks to ionisation control
- Flame temperature 50–1500°C
- Variable λ range



Application



Thanks to the annular excess air burner BIC..R's modular design, the components can be selected in accordance with the required gas type and burner output.

The annular excess air burner is suitable for use in industrial kilns in the ceramics, pottery and enamel industries. Its mechanical construction means that it is particularly suitable for use on high-speed kilns.

Two air connections allow a very high lambda value of up to $\lambda = 50$ to be reached. The flame outlet temperature can be adjusted directly to the kiln temperature/time profile in intermittent systems with minimum energy supply while also supplying a high flame outlet velocity and therefore high convective heat transfer.

Separate secondary air ensures CO-optimised combustion with high excess air.

The large air cross-sections enable large volumes of air to be introduced during the system's cooling phase, which leads to a reduction in the cooling time and therefore to an increase in the system's availability.

Reducing and oxidising combustion are possible.



Ceramics kiln with temperature control via impulse system



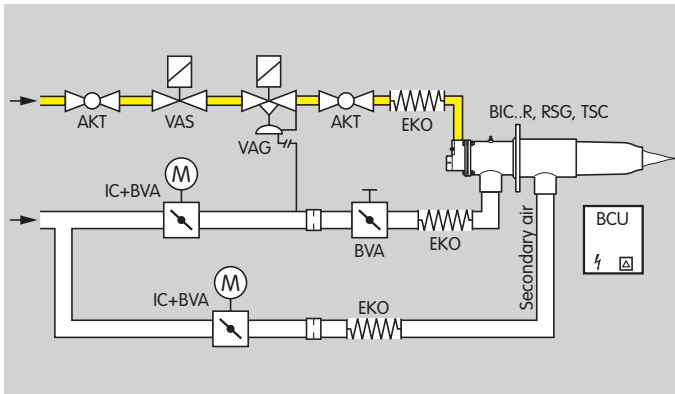
High-speed combustion in the fine ceramics industry



Chamber kiln for intermittent operation

Examples of application

Modulating or stage-controlled burner system for high-speed kilns



The burner output is modulated or stage-controlled by adjusting the butterfly valve BVA. The air/gas ratio control VAG ensures a constant gas/air flow ratio via the impulse line.

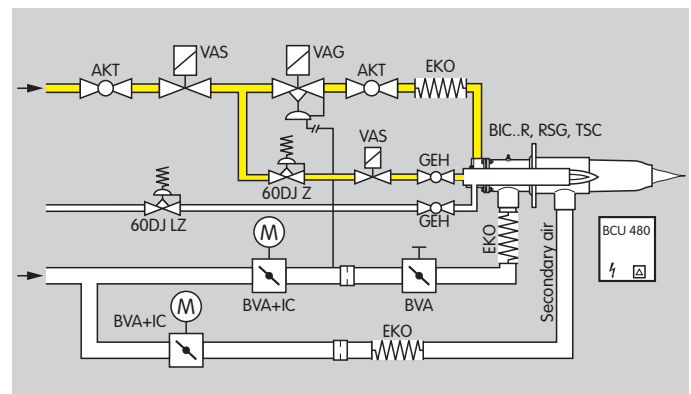
The secondary air flow is varied by adjusting the second butterfly valve, independent of the burner output. This means that the flame temperature can be matched to the kiln temperature while maintaining a high flame outlet velocity.

Short cooling times are achieved by feeding the maximum cooling air volume when the burner is switched off and the butterfly valves are fully open.

This example system can be used in the manufacture of heavy clay and fine ceramics, porcelain, technical ceramics and ceramic refractory products.

Burner system with lance

The burner may also optionally be ignited by an integrated ignition lance.



Selection

Burner type

Type	Housing	Air temperature [°C]	Kiln temperature [°C]
BIC	GG 25	20–450	50–1450
BICA	AlSi	20–200	50–1450

Brennergröße

Burner size	Output [kW]
BIC 65, BICA 65	15, 50, 60
BIC 100	130, 200, 230
BIC 140	320, 360

Burner head

The choice of burner head depends on the flame shape, gas type and variant.

Flame shape	Code letter	Control range ²⁾		Low fire λ	λ ³⁾	Kiln temperature [°C]	Air temperature ⁴⁾ [°C]
		Continuous	Staged				
Short	R	1:10	> 1:10	> 1.05	0.8–1.3	50–1350	20–150 ⁵⁾
Long	H ¹⁾	1:10	1:10	> 1.3	0.8–1.5	500–1600	20–450

¹⁾ Only for BIC 65, BICA 65

²⁾ A wider control range can be achieved by choosing a variant.

³⁾ For exact values for the respective burner version, see burner diagram at www.docuthek.com.

⁴⁾ The gas flow rate should be reduced in accordance with the enthalpy gain of the preheated combustion air.

⁵⁾ Higher temperatures available on request.

Gas type	Code letter	Calorific value range [kWh/m ³ (n)]	Density [kg/m ³]
Natural gas L and H quality	B	8–12	0.7–0.9
Propane and propane/butane	G ¹⁾	25–35	2–2.7
Propane, propane/butane, butane	M	25–35	2–2.7

¹⁾ Only for BIC 100

Variant	Code letter	Output [kW]	λ
Ignition lance	L	approx. 1.5	> 1.05
Reduced max. connection rating	R	–	> 1.05

Combination TSC for BIC and second TSC for RSG

Output [kW]	BIC	Outlet dia. TSC for BIC..R	RSG	Outlet dia. TSC for RSG	Secondary air flow [m ³ /h]	$p_{\text{secondary air}}$ [mbar]
15	BIC(A) 65	TSC 50B020-300/135	RSG 100/65	TSC 100B050-250/35	250	25
50	BIC(A) 65	TSC 65B033-300/135	RSG 100/65	TSC 100B050-250/35	380	70
50	BIC(A) 65	TSC 65B033-300/135	RSG 100/65	TSC 100B065-250/35	600	60
60	BIC(A) 65	TSC 65B040-300/135	RSG 100/65	TSC 100B065-250/35	400	40
130	BIC 100	TSC 100B050-300/35	RSG 140/100	TSC 140B070-300/35	500	50
200	BIC 100	TSC 100B065-300/35	RSG 140/100	TSC 140B085-300/35	500	45
230	BIC 100	TSC 100B082-300/35	RSG 140/100	TSC 140A120-300/35	500	25
320	BIC 140	TSC 140B085-300/35	RSG 200/140	TSC 200B107-300/35	650	25
360	BIC 140	TSC 140A120-300/35	RSG 200/140	TSC 200A180-300/35	750	30

SiC material for TSC

Material	Air temperature [°C]	Burner head code letter	Optional lance (L)	Kiln temperature [°C]	Max. application temperature [°C]
Si-1500	< 450	H, R	L	< 1450 ¹⁾	1500 ²⁾

¹⁾ Higher kiln temperatures up to 1600°C available on request.

²⁾ Melting point of silicon 1380°C.

Type code

Annular excess air burner BIC..R

Code	Description
BIC	Burner for gas
BICA	Burner for gas with aluminium housing
65–140	Burner size
R	Flame shape: short
H	long
B	Gas type: natural gas
G	propane, propane/butane, butane
M	butane, propane, propane/butane
L	Versions: separate low-fire gas and air rate supply
R	reduced max. connection rating
-100	Length of burner extension
-150	
-200	
-250 ...	
/185-	
/235-	Position of burner head
/285-	
/335- ...	
(1–99)	
A–Z	Construction stage
R	Annular excess air burner

Ceramic tube set TSC

Code	Description
TSC	Ceramic tube set
50–200	Designed for burner size
A	Shape: cylindrical
B	tapered
020, 033, 040, 050, 065, 070, 082, 085, 107, 120	Outlet dia. [mm]
-250, -300	Tube length [mm]
/35-	Position of burner head
/135-*	
Si-1500	Ceramic tube material

* Only for BIC 65, BICA 65

Annular excess air burner housing RSG

Code	Description
RSG 100	Annular excess air burner housing size
RSG 140	
RSG 200	
/65	Designed for burner size: BIC 65, BICA 65
/100	
/140	
-0	Annular excess air burner housing extension
-50	
-100	
-150	

Technical data

Output [kW]	Burner	Outlet dia. TSC for BIC..R	Flame shape/code letter	Construction stage	Visible flame length ¹⁾	Flame outlet velocity [m/s] ²⁾
15	BIC(A) 65	20	H...R	E (D)	15	100
50	BIC(A) 65	33	H	E (D)	27	120
60	BIC(A) 65	40	H	E (D)	33	100
130	BIC 100	50	R	F	40	145
200	BIC 100	65	R	F	45	130
230	BIC 100	82	R	F	50	100
320	BIC 140	85	R	E	60	125
360	BIC 140	120	R	E	80	70

¹⁾ Measured from ceramic tube opening at rated capacity in the open air, $\lambda = 1.05$.

²⁾ Referred to rated capacity, calculated using the flame temperature:
1600°C = type "R" flame shape, 1500°C = type "H" flame shape, $\lambda = 1.05$.

Gas supply pressure:
approx. 10 to 40 mbar,
air supply pressure: approx. 10 to 30 mbar,
secondary air pressure: 25 to 70 mbar,
each depending on flame shape and
gas type (gas and air pressures and
secondary air – see Operating charac-
teristic diagram (D, GB) and Flow rate
curve (D, GB) – www.docuthek.com
→ Elster Kromschroder → Products
→ 07 Burners and pilot burners →
Annular excess air burners, Kind of docu-
ment: Working range/Flow rate.

Annular excess air burner housing
RSG length:
0 to 150 mm (other lengths available on
request).

Types of gas: natural gas, LPG (gaseous).
Control ranges: approx. 1:10 for modulat-
ing or stage control.

Excess air up to $\lambda = 50$ is possible, de-
pending on the burner size and ceramic
tube combination.

Flame control:
direct ionisation control (UV control as an
option).

Ignition:
direct, electrical, lance as an option.

Ignition capacity $\leq 40\%$ of max. burner
capacity.

For higher ignition capacity – see Op-
erating characteristic diagram (D, GB)
– www.docuthek.com → Elster Krom-
schroder → Products → 07 Burners and
pilot burners → Annular excess air burners,
Kind of document: Working range.

Max. kiln temperature: 1450°C with
TSC tube SI-1500.

Burner housing:

BIC: GG25,
BICA: AISi.

Hot air:

BIC up to 450°C,
BICA up to 250°C.

Flame outlet velocity: medium to high.

Flame shape: normal, long.

The flame diameter is one to two times that
of the burner tube outlet.

Integrated measuring orifice and adjuster
for the gas flow rate in the gas connection
flange (only BIC).

Maintenance cycles

Twice per year, but if the media are highly
contaminated, this interval should be re-
duced.

Detailed information on this product

www.docuthek.com → Elster Kromschroder

Search term: BIC..R, RSG

Kind of document: Technical information

Contact

www.kromschroeder.com → Sales

Elster GmbH
Postfach 2809 · 49018 Osnabrück
Strothweg 1 · 49504 Lottje (Büren)
Germany

T +49 541 1214-0
F +49 541 1214-370
info@kromschroeder.com

www.kromschroeder.com
www.elster.com

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