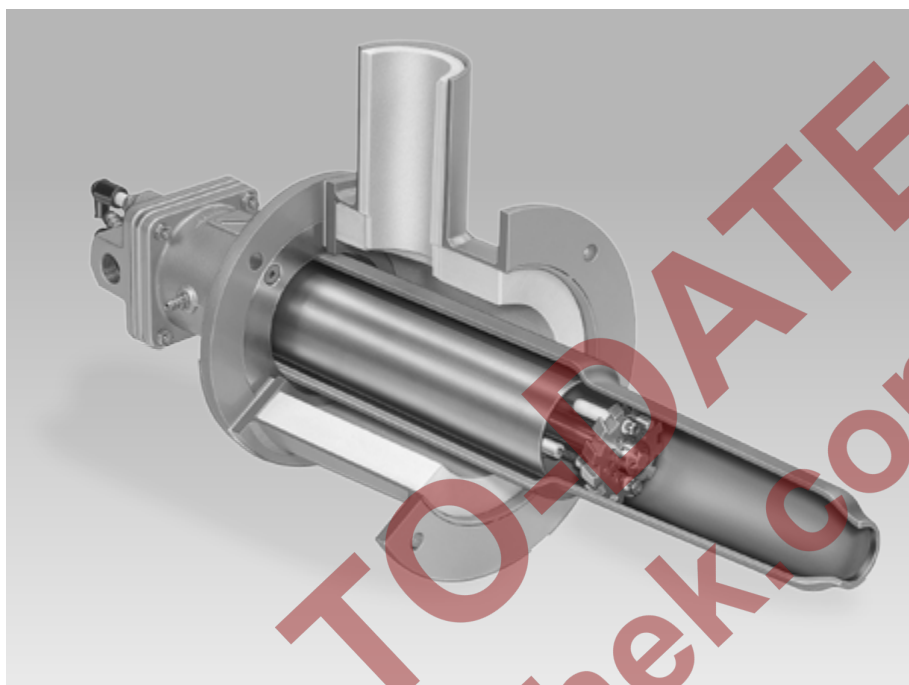




- // Low cost, energy-saving burner
- // Modular structure
- // Compact design
- // High exit velocity of the flue gases
- // Low emission combustion
- // For new systems and refurbishment
- // Direct ignition and on/off control
- // Three capacities available from 70,000 Btu/Hr to 280,000 Btu/Hr (21 kW to 82 kW)
- // Multiple exhaust housing and recuperator lengths available
- // Low maintenance design
- // Flame rod or UV detector flame supervision

Application

BICR self-recuperative burners are used in all types of industrial furnace and oven applications where it is necessary to isolate the products of combustion from the product, or when an internal atmosphere is used. The BICR is a high efficiency burner providing an economical operation and uniform tube temperatures, increasing the life of the radiant tube and reducing maintenance cost.

Specifications

Operating Limits

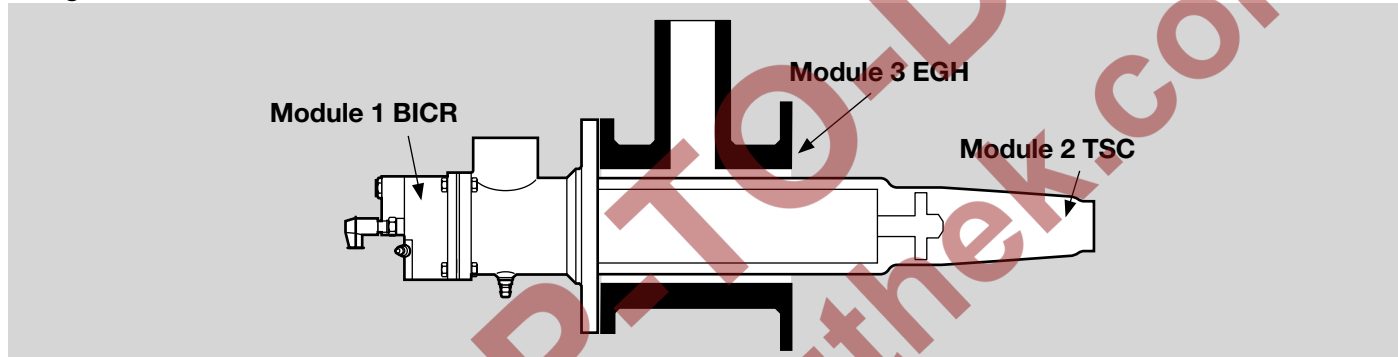
Type of gas: Natural gas, propane, propane/butane, other gases on request

Burner capacity

BICR 65/50:	70,000 Btu/Hr (21 kW)
BICR 80/65:	142,000 Btu/Hr (41 kW)
BICR 100/80	280,000 Btu/Hr (82 kW)

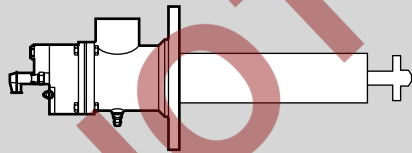
Maximum furnace temperature approximately: 1700° F (927° C)

Design



Module 1

Burner with cast steel housing BICR



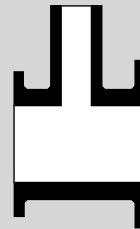
Module 2

Ceramic heat exchanger TSC



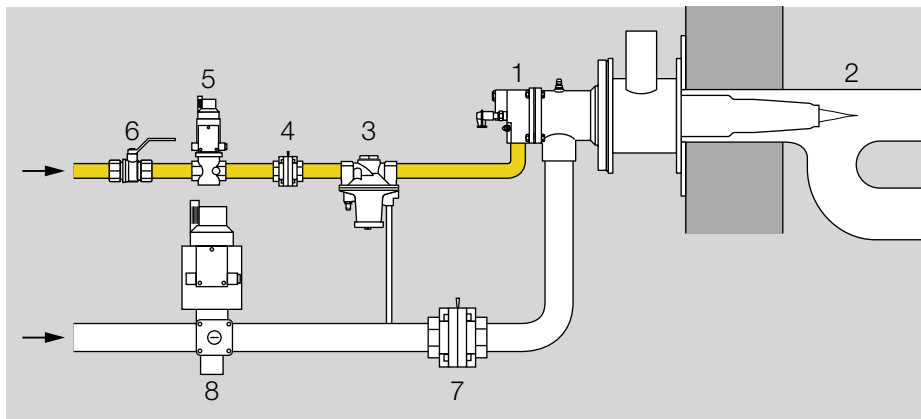
Module 3

Exhaust gas housing EGH with integrated insulation



Typical frequency firing piping

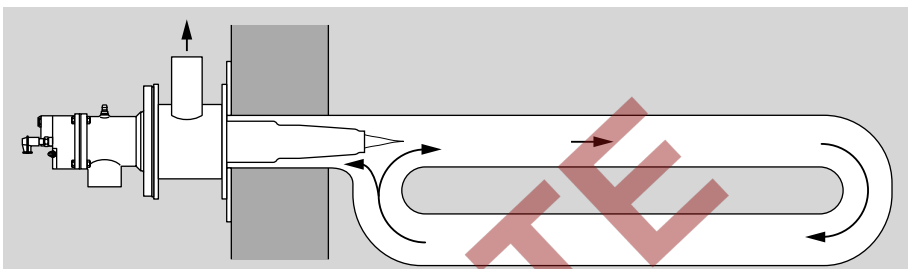
- 1 BICR burner assembly
- 2 Radiant tube "P" type
- 3 Ratio regulator
- 4 Gas orifice
- 5 Gas solenoid valve
- 6 Manual shut-off valve
- 7 Air orifice
- 8 Air solenoid valve



Examples of application

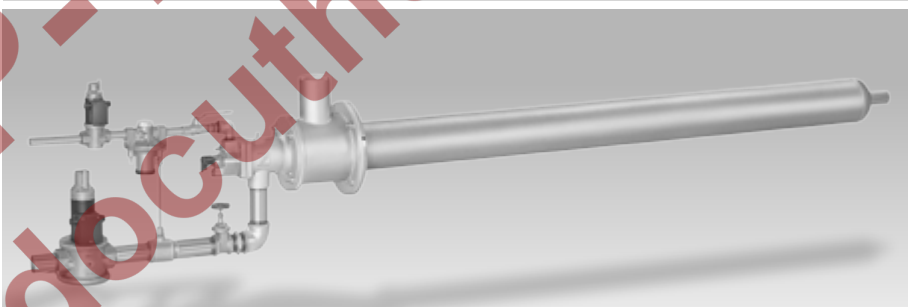
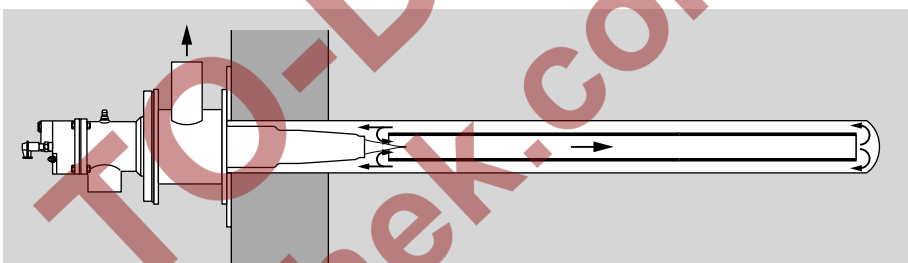
"P" tube with self-recuperated burner

This design utilizes the new BICR self-recuperative high velocity burner. The velocity creates the negative pressure to re-circulate the products of combustion. This design preheats air to 650° F (340° C) to increase thermal efficiency, reduces NOx emissions, and optimizes the tube temperature uniformity. The burners are available with capacities of 70,000 Btu/Hr to 280,000 Btu/Hr (21 to 82 kW).



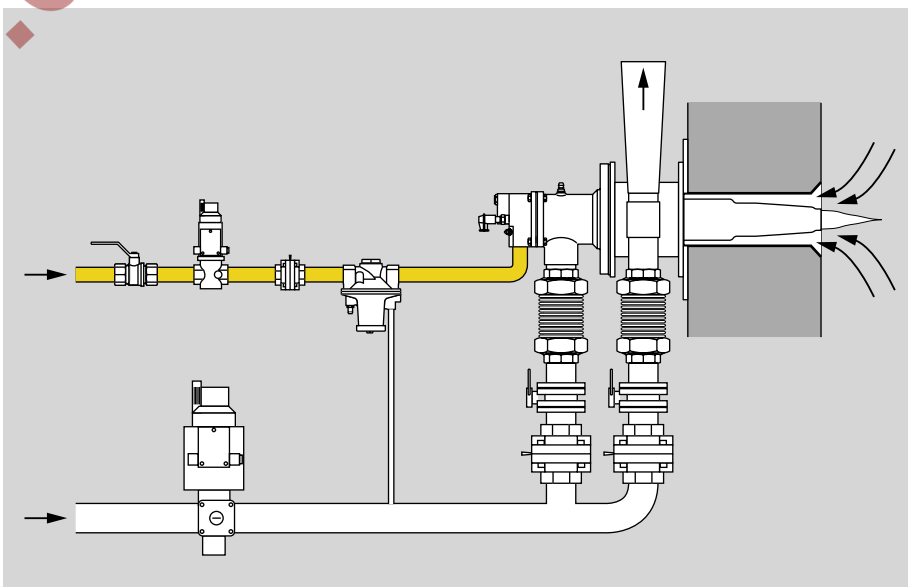
Single ended tube with self-recuperated burner

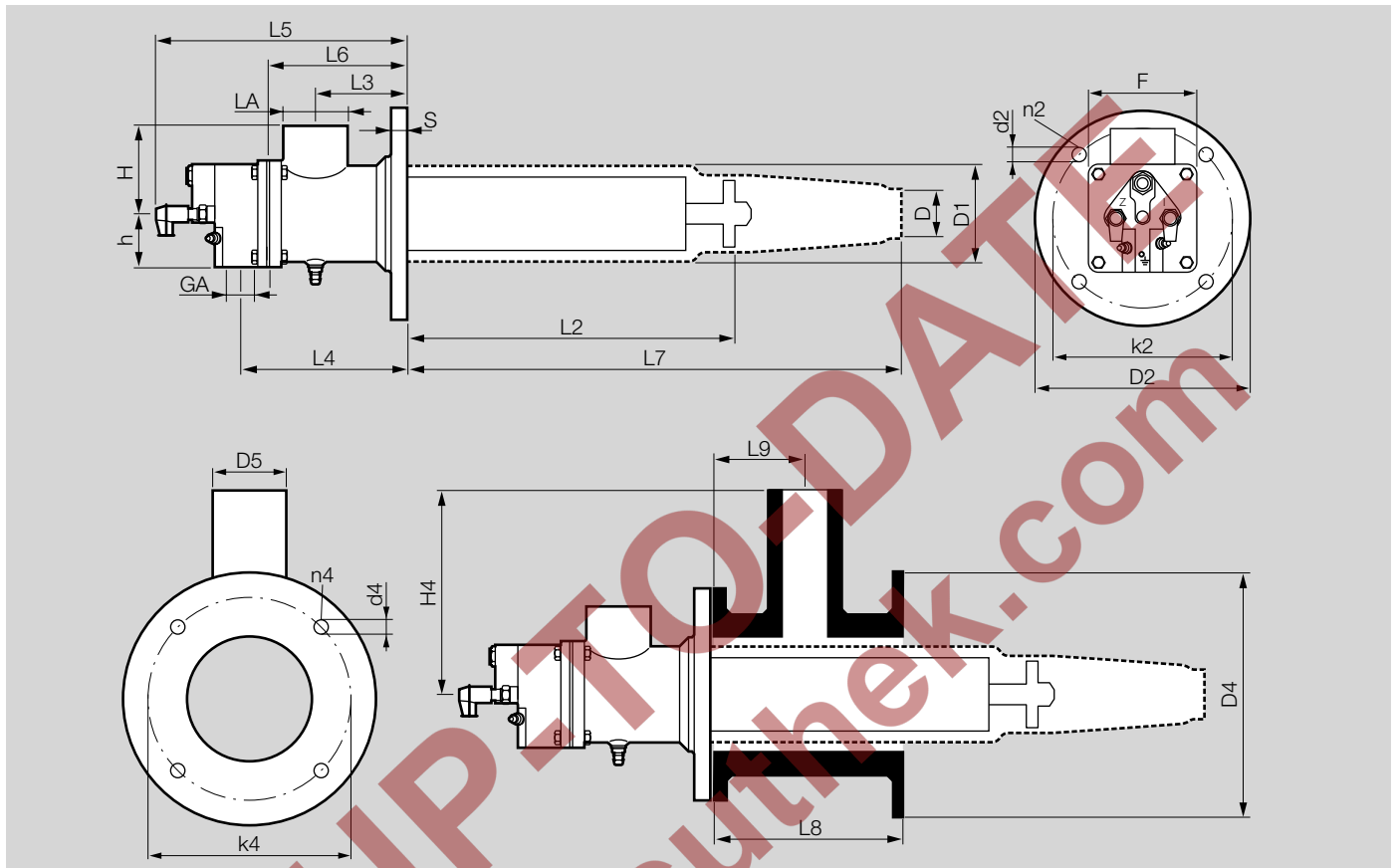
This design utilizes the new BICR self-recuperative high velocity burner. The velocity creates the negative pressure to re-circulate the products of combustion. This design preheats air to 650° F (340° C) to increase thermal efficiency, reduces NOx emissions, and optimizes the tube temperature uniformity. The burners are available with capacities of 70,000 Btu/Hr to 280,000 Btu/Hr (21 to 82 kW). The outer tube is Kanthal APM material and the inner tube is silicon carbide.



Direct firing self recuperative

This design provides a high degree of temperature uniformity in the furnace due to high outlet velocity of combustion gases. An energy savings of up to 40% is possible when comparing to burners without preheating. The eductor creates the negative pressure required to pull the products of combustion through the recuperator to preheat combustion air.





Dimensions [inches]

Type	Dimensions [inches]																								Weight		
	D	D1	GA	LA	H	h	S	L2 ¹	L3	L4	L5	L6	L7	D2	k2	d2	n2	F	L8 ²	L9	H4	D4	D5	k4	d4	n4	[lbs] ^{***}
BICR 65/50	0.87	2.68	NPT ½	NPT 1½	2.44	1.50	0.47	15.2–30.9	2.87	6.26	9.88	5.00	19.7–35.4	7.68	6.50	0.47	4	3.74	7.48	3.54	8.03	9.45	2.65	7.87	0.55	4	17.5
BICR 80/65	1.18	3.43	NPT ¾	NPT 2	4.41	2.17	0.55	13.2–28.9	3.54	7.17	11.1	6.10	19.7–35.4	9.45	8.27	0.55	4	4.33	7.48	3.54	8.58	10.2	2.95	8.66	0.55	4	29.3
BICR 100/80	1.57	4.33	NPT ¾	NPT 2	5.94	2.36	0.63	13.2–28.9	4.06	7.68	12.6	6.02	21.7–37.4	9.45	7.87	0.55	4	4.72	7.48	3.54	9.29	11.8	4.02	10.2	0.55	4	32.4

Dimensions [mm]

Type	Dimensions [mm]																										Weight
	D	D1	GA	LA	H	h	S	L2*	L3	L4	L5	L6	L7	D2	k2	d2	n2	F	L8**	L9	H4	D4	D5	k4	d4	n4	[kg]***
BICR 65/50	22	68	NPT ½	NPT 1½	62	38	12	385–785	73	159	251	127	500–900	195	165	12	4	95	190	90	204	240	65	200	14	4	7.95
BICR 80/65	30	87	NPT ¾	NPT 2	112	55	14	335–735	90	182	282	140	500–900	240	210	14	4	110	190	90	218	260	75	220	14	4	13.3
BICR 100/80	40	110	NPT ¾	NPT 2	100	60	16	335–735	103	195	320	153	550–950	240	200	14	4	120	190	90	236	300	102	260	14	4	14.7

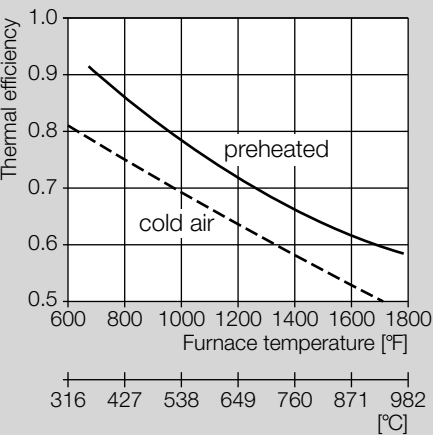
* in increments of 4" (100 mm)

** other lengths on request

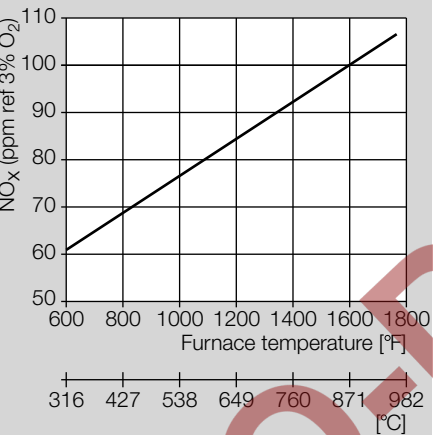
*** weight of the shortest length

Data

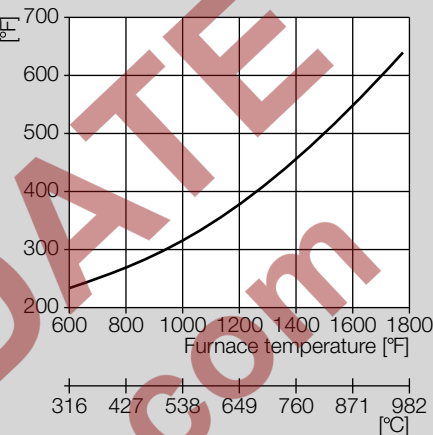
Thermal efficiency



NOx Emission



Preheated air temperature



Order Information

BICR	Example: BICR 80/65THB-0/335(22)C
BICR	Self Recuperating Burner
65, 80, 100	Air housing size
/50	Burner size BICR 50
/65	Burner size BICR 65
/80	Burner size BICR 80
T	T-Product
H	Flame shape: long
B	Type of gas: natural gas
-0	No options for burner length
/385, /485, /585, /685, /785	Length from mounting flange to face of burner head (BICR 65/50)
/335, /435, /535, /635, /735	Length from mounting flange to face of burner head (BICR 80/65, BICR 100/80)
(X)	Contact sales office for burner head no
X	Contact sales office for construction stage

EGH	Example: EGH 80/65-190
EGH	Exhaust gas housing
65, 80, 100	Air housing size
/50, /65, /80	Burner size
-190*, -240, -290, -340, -390	Exhaust housing length

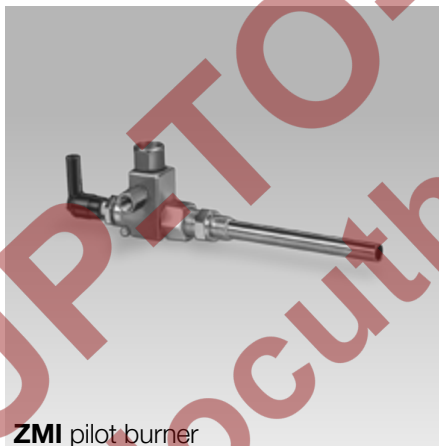
* standard length: 7.48" (190 mm)

TSC	Example: TSC 80/65B030-500/335-Si-1350
TSC	Ceramic tube set
65, 80, 100	Housing size
/50, /65, /80	Burner size
B	Recessed form
022, 030, 040	Exit diameter [mm]
-500, -600, -700, -800, -900	Heat exchanger (TSC) length [mm] (BICR 65/50, BICR 80/65)
-550, -650, -750, -850, -950	Heat exchanger (TSC) length [mm] (BICR 100/80)
/385, /485, /585, /685, /785	Length from mounting flange to face of burner head (BICR 65/50)
/335, /435, /535, /635, /735	Length from mounting flange to face of burner head (BICR 80/65, BICR 100/80)
-Si	Ceramic tube material: silica-filtered SiC
-1350	Max. application temperature in °C (2460° F)

Additional Burners offered by Kromschroder Inc.



ZAI pilot burner



ZMI pilot burner



ZKIH pilot burner



BIO for radiant tube/cold air applications



BIC..L for excess air



RSG double housing for excess air

Warning:

Situations dangerous to personnel and property can result from the misapplication and incorrect operation of combustion equipment. Kromschroder advises compliance with the National Fire Protection Association standards that apply for related equipment and Insurance Underwriters recommendation, and care of operation.

We reserve the right to make technical changes designed to improve our products without prior notice. For current product information, visit our website at www.kromschroder.com.