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Northern Interindustry Company  
«The Alternative» Ltd  
For the attention of  
Deputy Director General for Development  
A.E. Lebedev

### **About the results of operation**

I forward you the report about operation results of БК3-160-100ГМ boiler unit No.14 and No.15 of Tver power plant No.4 after the installation of heat exchnage elements for air heaters produced by your enterprise.

I note that the replacement of heat exchange elements for air heaters have resulted in sufficient improvement of boiler functioning that increase boiler efficiency and reduce environmental resistance in air and gas paths.

Enclosure: list of main parameters of boiler functioning.

Best regards,  
Deputy Technical Director  
Tver power plant No.4

A.V.Sorokin

**List of main parameters of boiler functioning (БК3-160-100ГМ No.14)**

No.	Parameter	Dimension	Until repair November, 2012	After repair with the installation of CMKA® heat exchange elements into RAH November, 2013
1.	Type of RAH – ПБП-54			
2.	Steam capacity	tons/hour	145	148
3.	Type of fuel	gas/ mazut	gas	gas
	Fuel consumption	m <sup>3</sup> /h	11 900	12 000
	Calorie content of fuel	kcal/m <sup>3</sup>	8012	8000
4.	Air leakage into furnace	%	5	5
	Coefficient of excess air at furnace outlet		1.06	1.06
	Coefficient of excess air before RAH		1.17	1.16
	Coefficient of excess air after RAH		1.44	1.40
5.	Gas temperature at RAH inlet	°C	221	228
	Air temperature at RAH inlet	°C	32	30
	Gas temperature at RAH outlet (flue gas)	°C	109	101
	Air temperature at RAH outlet	°C	188	191
6.	RAH resistance by gas	mm of water column	65	64
	Calorifer and RAH resistance by air	mm of water column	97	95
7.	Temperature of flue gases	°C	109	101
	Heat loss with flue gases	%	5.3	5.15
	Boiler gross efficiency	%	94.1	94.5

Notes:

1. Heat exchange elements before the replacement – steel sheet
2. Gate of gas-circulating fan is closed

Head of Boiler Workshop  
Tver power plant No.4

V.F.Korotkikh

**List of main parameters of boiler functioning (БК3-160-100ГМ No.15)**

No.	Parameter	Dimension	Until repair	After repair with the installation of CMKA® heat exchange elements into RAH
			May, 2008	September, 2008
1.	Type of RAH – ПБП-54			
2.	Steam capacity	tons/hour	130	130
3.	Type of fuel	gas/ mazut	gas	gas
	Fuel consumption	m <sup>3</sup> /h	11 340	11 900
	Calorie content of fuel	kcal/m <sup>3</sup>	7985	8017
4.	Air leakage into furnace	%	4.5	4.5
	Coefficient of excess air at furnace outlet		1.05	1.08
	Coefficient of excess air before RAH		1.12	1.14
	Coefficient of excess air after RAH		1.58	1.44
5.	Gas temperature at RAH inlet	°C	228	225
	Air temperature at RAH inlet	°C	29	29
	Gas temperature at RAH outlet (flue gas)	°C	95	96
	Air temperature at RAH outlet	°C	187	191
6.	RAH resistance by gas	mm of water column	161	52
	Calorifer and RAH resistance by air	mm of water column	285	150
7.	Temperature of flue gases	°C	95	96
	Heat loss with flue gases	%	5.2	4.5
	Boiler gross efficiency	%	94	94.7

Notes:

1. Heat exchange elements before the replacement – ceramic, partially damaged
2. Gate of gas-circulating fan is closed.

Head of Boiler Workshop  
Tver power plant No.4

V.F.Korotkikh