

CMKA®

profile and baskets
for regenerative
air preheaters



ALTERNATIVE

NORTHERN INTERINDUSTRY COMPANY



Dear friends!

You are welcome by "The "Alternative" Ltd! We have been supplying the profile and baskets for regenerative air preheaters for Russian and foreign Power Stations under CMKA® brand for ten years.

By 2015 CMKA® profile is installed in every third Russian Power Stations and our market share is constantly growing.



In this booklet we offer you to get acquainted with our CMKA® profile by using questions which the most common for our clients.

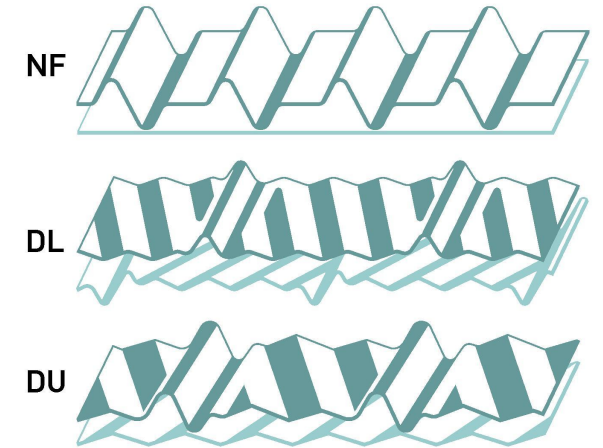
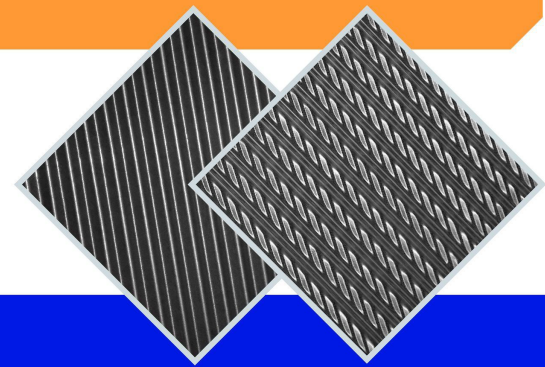
How we may learn an economical efficiency from CMKA® profile usage for a specific boiler unit?

Our specialist calculate an economical efficiency in advance as a fuel saving forecast measured in tone/rubles per year after the installation of the CMKA® profile (upon condition that a Power Station personnel gave us all necessary information about a boiler unit performance). As a rule, actual efficiency is better than the counted in advance efficiency.

What kinds of designed profiles could be replaced by CMKA® profile?

Any profile (including DU, DL, NF6 and others). CMKA® profile was specially designed as more efficiency replacement for all kinds of designed profiles. For the ultimate efficiency our technical specialists design our profile for an every customer because each boiler unit has its own unique characteristics.

Moreover, fuel saving plays an important role in ecological situation in a Power Station region.





Why CMKA® profile baskets have less weight than designed ones?

One could install in one dimension of regenerative air preheater sector a designed profile with less equivalent diameter (for example, NF/DU profiles) or CMKA® profile will less weight but larger equivalent diameter. Therefore, CMKA® profile weight is less than other profiles but the heat exchange rate is better.

Could you estimate how CMKA® profile is better in heat exchange rate than the other kinds of profile?

The heat exchange rate depends on the profile. CMKA® profile heat-transfer coefficient is, for example, 1,3 times higher than DU profile one and 2,3 times higher than NF profile coefficient. This abundantly compensates the weights differences and provides the higher heat exchange as a whole.

Could CMKA® profile be enameled?

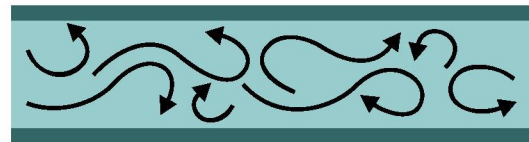
CMKA® profile parameters allow to enamel it for usage in aggressive environment without losing any of its operational characteristics. At that:

- Service life of cold layer heat-exchange elements will be increased by several times;
- There will be an opportunity to effectively install CMKA® profile into De-NOx systems (Gas-Gas heaters). CMKA® profile is enameled by glass enamel coating applying under the specific technology of Ferro Techniek BV Company (based in the Netherlands).

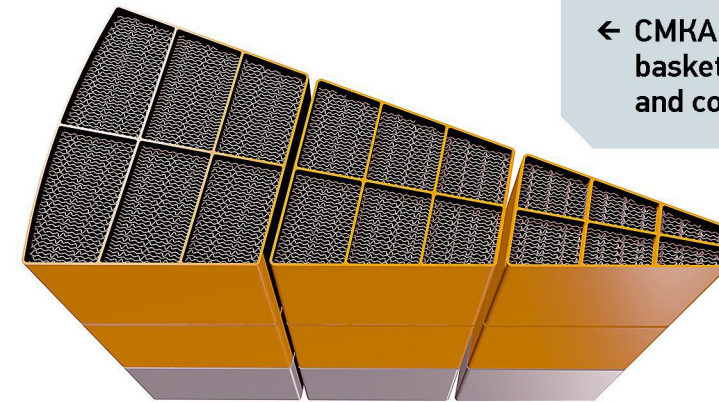
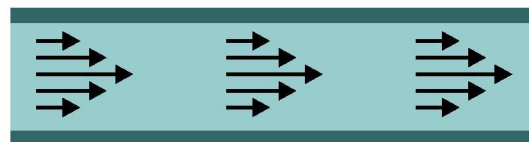
What the exact difference of CMKA® profile from the others kinds of profile?

Due to CMKA® profile unique characteristics air and gas flows in regenerative air preheater have optimal turbulence unlike flows in other kinds of profile. This allows us to reach the more effective heat exchange with the less heating surface and less weight.

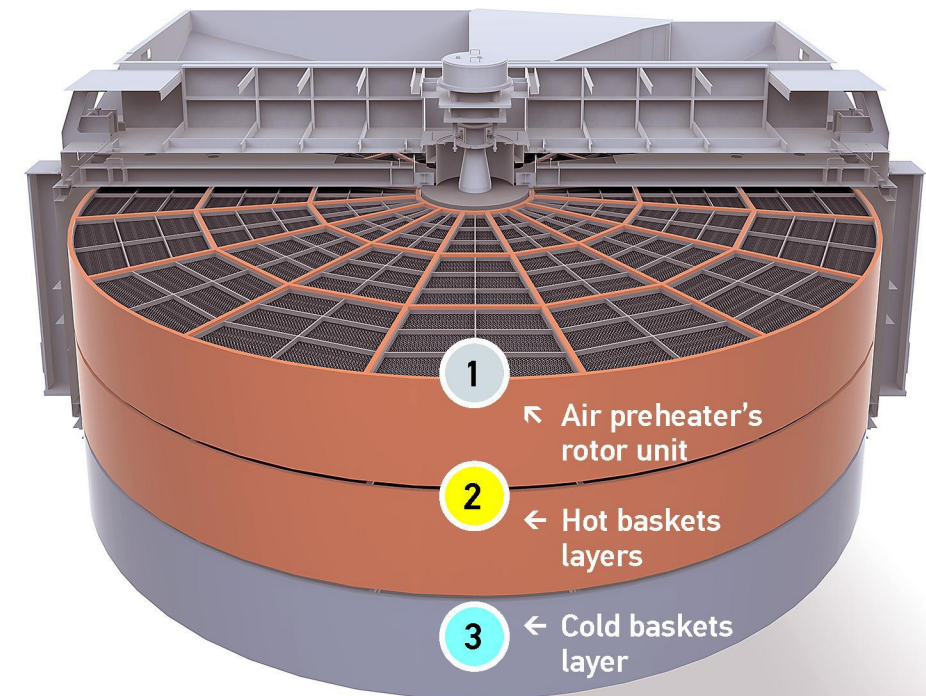
Turbulent



Laminar



← CMKA® profile baskets with hot and cold layers



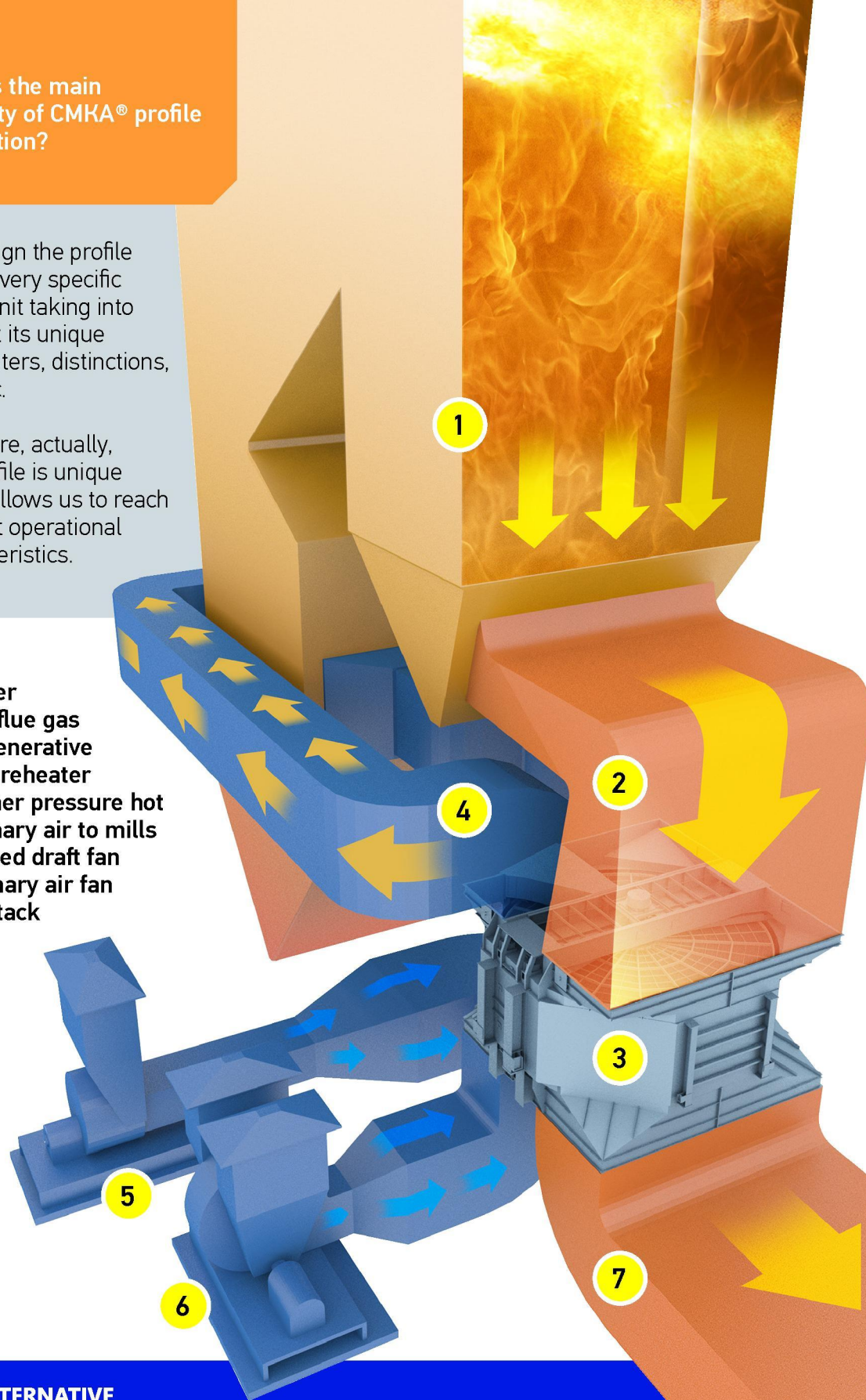
- 1 ← Air preheater's rotor unit
- 2 ← Hot baskets layers
- 3 ← Cold baskets layer

What is the main specialty of CMKA® profile production?

We design the profile for an every specific boiler unit taking into account its unique parameters, distinctions, fuel, etc.

Therefore, actually, our profile is unique which allows us to reach the best operational characteristics.

1. Boiler
2. Hot flue gas
3. Regenerative air preheater
4. Higher pressure hot primary air to mills
5. Forced draft fan
6. Primary air fan
7. To stack



Could you provide examples when a boiler unit operation problems were solved by using CMKA® profile?

If a boiler unit problems were caused by a regenerative air preheater (from our experience we may conclude that the most of such problems occur in heat-exchange assembly) than 100% these problems were solved after CMKA® profile installation.

We would like to provide some examples below:

$PV = \frac{m}{\mu} RT$	$\Delta U = Q - A$
$W_{кр} = \frac{i}{2} kT$	$A = \int P dV$
$U = \frac{i}{2} PV$	$C_v = \frac{i}{2} R$
$W_{кр} = \frac{3}{2} kT$	$U = \frac{i}{2} \frac{m}{\mu} RT$
$C_p = \frac{i+2}{2} R$	

Example 1

Regenerative air preheater profile for P-57 boiler unit in "Troitskoy GRES" (the city of Troitsk Power Station). Before CMKA® profile installation the previous profile had ash deposits and slag up to 10mm. fractions (the number of plugged profile channels was up to 50%). These ash deposits and slags reduced the exhaust blowers and blower fans performance. As a result, there was a lack of air for the appropriate combustion process, the combustion zone moved from the furnace bottom to the ceiling, and personnel needed to stop the boiler unit to remove slag and ash fractions.

After CMKA® profile installation all profile become clean, the high force draft margin appeared, so the problem was solved. Also the Power Station received the self-power production saving (for 0,8 kilowatt per ton of produced steam).

Example 2

The profile replacement in TPP-210A boiler unit in ТЭЦ-22 (Power Station No. 22 belongs to "Moscow Power Network"). Before the replacement the middle layer of the boiler had ash deposits for 70% by section and by 50 – 60 % by height during the winter season. This caused the limitation of the boiler loading by draft and forced draft.

After CMKA® profile installation the ash contamination problem have disappeared in such an extent that Power Station personnel forgot about that ash deposits. The exhaust fans had a stable force draft margin near 40 mm w.g. and the exhaust gas temperature decreased by 9°C.

Responses about CMKA® profile on our website: www.smk-alternativa.ru in sections: "The production of regenerative air heater (RAH) profiles" – "References".

We will be glad
to hear you by the phone:
+7 (8184) 589898

Contacts:
e-mail: post@smk-alternativa.ru
or our website contact form:
www.smk-alternativa.ru



ALTERNATIVE

NORTHERN INTERINDUSTRY COMPANY