



JuSyS[®] CFB

Ceramic Tile System for Circulating Fluidized Beds



For over 20 years the installation of ceramic tile systems to protect boiler walls in refuse incinerators has been state-of-the-art. With the development of **JuSys**[®] CFB (Circulating Fluidized Bed)), Jünger+Gräter succeeded in also applying the technological success story of the protection of tube walls with ceramic tile systems to the CFB sector.

The big challenge of the development of a tile system for the CFB plants was the significantly higher erosion stress on the surface of the refractory material due to sand, ash and inert materials in comparison to grate firing in refuse incineration.

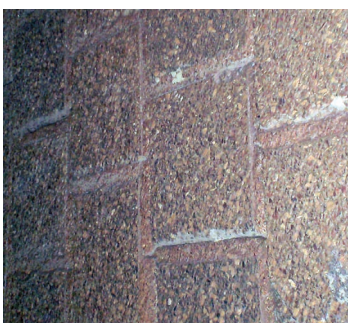
Based on a specific design of the joint between the tiles and the application of a highly abrasion-resistant special refractory mix to close the joints, the **JuSys**[®] CFB system is now an alternative to standard linings out of refractory mixes. The **JuSys**[®] CFB system combines several decisive advantages.

Besides the possibility to utilize ceramically sintered products with a higher resistance to chemical attack and enhanced physical properties, the tile system offers tremendous advantages if replacing the lining as part of the overhaul process. Our tile systems only require 30 to 50 % of the replacement time needed for linings out of abrasion-resistant refractory castables. The reason is the less effort required to break out the areas that need to be replaced with new materials. Combined with a significantly longer service life, there is also the possibility to lower costs with the **JuSys**[®] CFB system once comparing it to the expenditure for standard linings out of refractory castables.

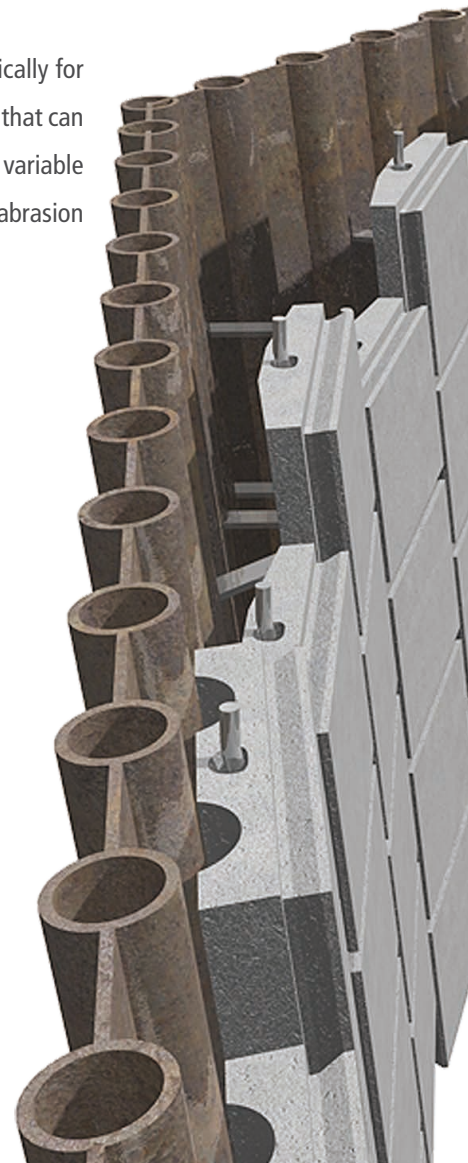
A further and not to be underestimated benefit connected to the **JuSys**[®] CFB system and specifically for the thermal aspects regarding boiler design is the significantly wider range of refractory products that can be used. Thus, **JuSys**[®] CFB offers the possibility to regulate the heat flux density almost infinitely variable via a thermal conductivity range of 1.0 to 18.0 W/mK. This is possible with concurrent superb abrasion resistance of the refractory materials.

>> Advantages

- Higher abrasion resistance due to fired refractory materials
- Higher resistance to chemical, corrosive attack by the flue gases
- Enhanced protection of boiler tubes against corrosio
- Longer service life due to utilization of fired refractory materials
- Quicker and cheaper maintenance
- Lower maintenance costs and higher plant availability



JuSys[®] CFB
after >16.000 operating hours

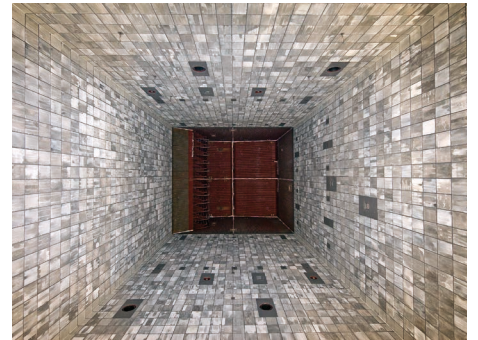


Material examples:	JUBRICK TE300C	JUFLOW SM114B	JUBRICK TE200Z	JUBRICK SI100C
Raw material base:	Alumina	Silicon carbide	Andalusite	Silicon carbide
Type of setting:	ceramic	hydraulic	ceramic	ceramic-nitride
Bulk density [g/cm ³]:	2,90	2,55	2,65	2,68
Porosity apparent [%]:	16	17	9	< 16
max. service temperature [°C]:	1.400	1.500	1.500	1.150
Abrasion resistance[cm ³]:	3,5	9,0	6,5	< 6,0
Thermal shock resistance:	Water >30 x	-	Water >50 x	Water >30 x
Special remarks:	Preshaped part, fired	Preshaped part, fired	Infiltration protection	Preshaped part, fired



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Installation of tile system





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