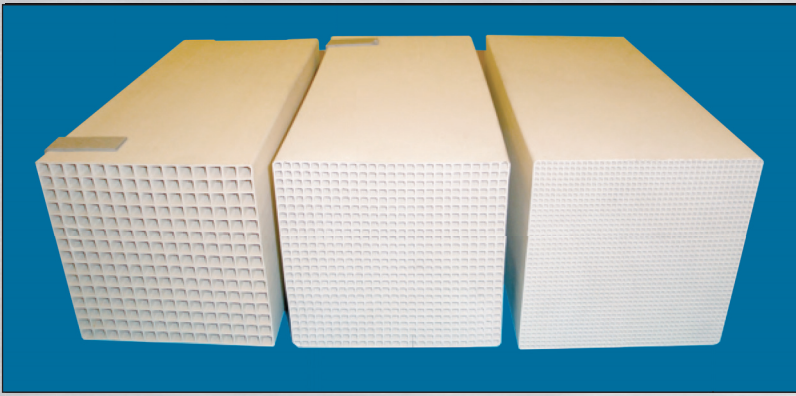
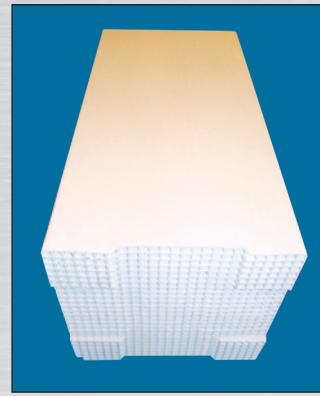


// HEAT EXCHANGING ELEMENTS

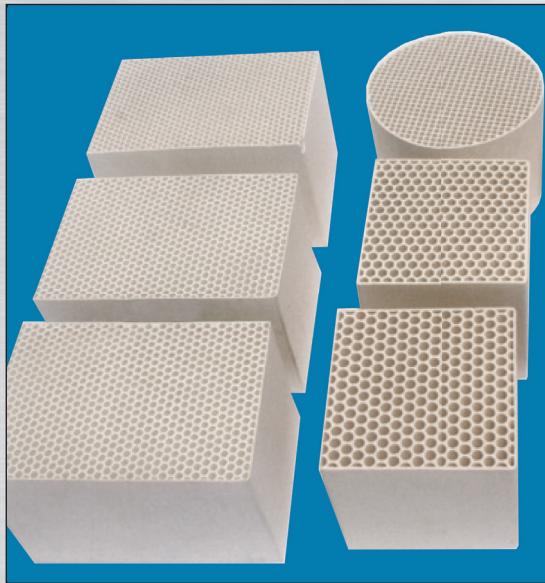
// CERAMIC HONEYCOMB FILTERS
// CATALYST SUPPORTING BALLS



We make heat exchangers with different sizes of honeycombs, according to customer's request.

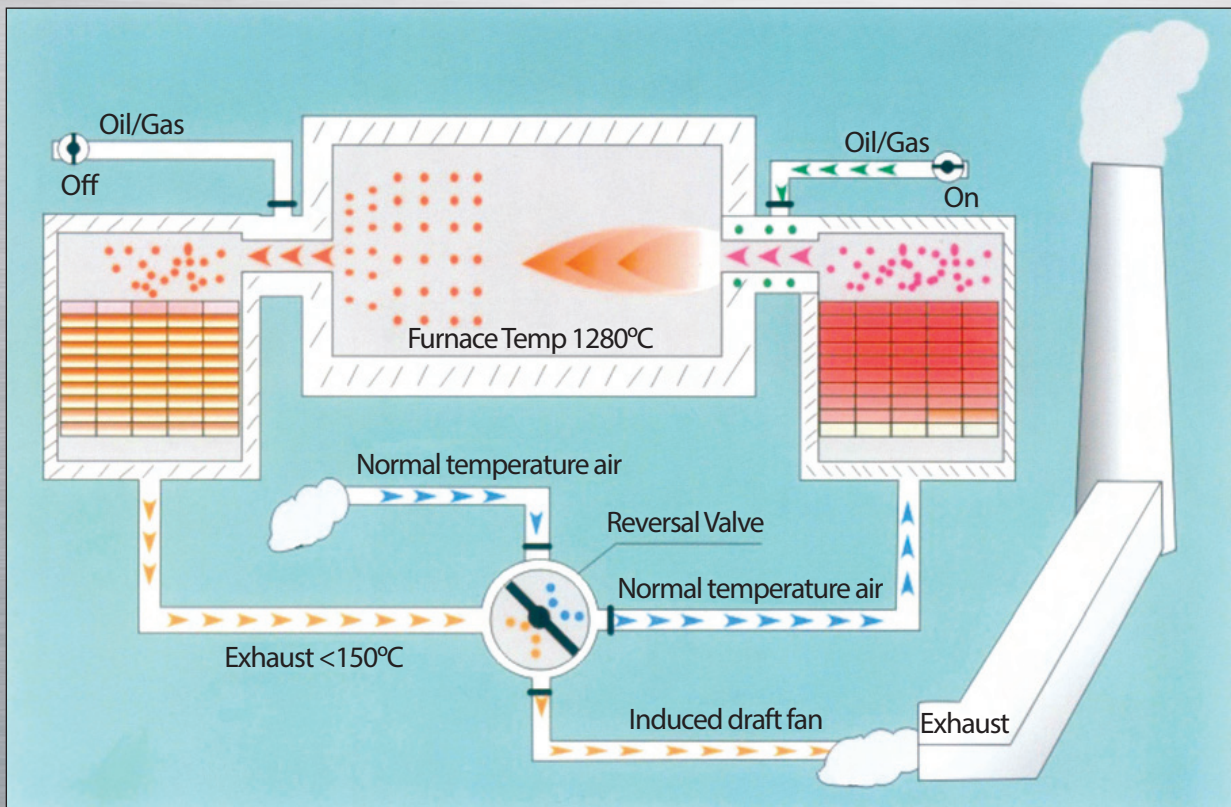


For better airflow on heat exchangers, we can make end steps with high 5mm



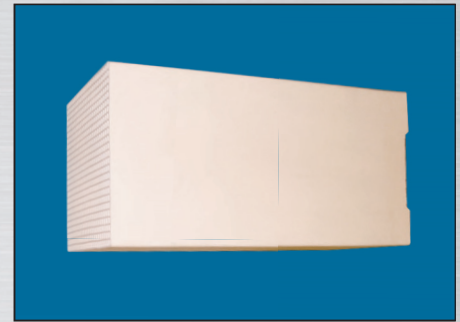
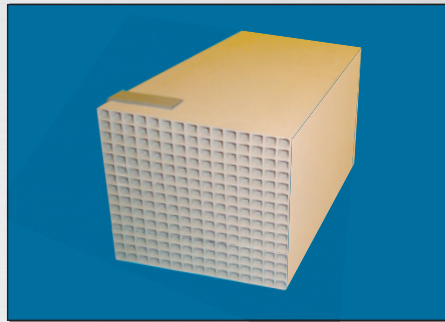
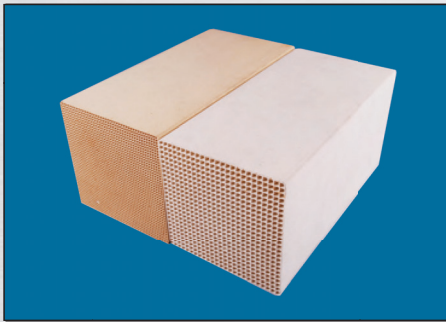
Different shapes of filters are used in different branches of chemical industry. Shapes of filters can be adjusted to customer's request.

Scheme below shows working process of the furnace with installed heat exchangers.



DIMENSIONS OF STANDARD HONEYCOMBS

Dimension	Quantity of channels	Wall thickness	Outside wall thickness	Channel Width	Void section	Weight piece
150x150x300	13x13	1.5mm±0.1	1.7mm±0.15	9.8-10mm	70%	3.8-4.8kg
150x150x300	15x15	1.4mm±0.1	1.6mm±0.15	8.3-8.5mm	69%	3.8-4.8kg
150x150x300	25x25	1.0mm±0.1	1.2mm±0.15	4.8-5.0mm	67%	4.0-5.0kg
150x150x300	40x40	0.7mm±0.1	1.1mm±0.15	2.9-3.1mm	64%	4.7-5.7kg
150x150x300	43x43	0.65mm±0.1	1.1mm±0.15	2.7-2.9mm	62%	4.8-5.8kg
150x150x300	50x50	0.6mm±0.1	0.8mm±0.15	2.3-2.5mm	61%	4.8-5.8kg
150x150x300	60x60	0.45mm±0.1	0.8mm±0.15	1.9-2.1mm	63.4%	4.7-5.7kg



CHEMICAL AND PHYSICAL PROPERTIES:

Characteristics:	Cordierite-Mullite	Cordierite	Mullite	Corundum-Mullite
SiO ₂ %	33-45	45-55	25-35	20-30
Al ₂ O ₃ %	38-50	30-40	52-65	65-75
MgO %	3-10	8-13	-	-
Fe ₂ O ₃ %	<1,5	<1,5	<1,5	<1,5
K ₂ O+Na ₂ O	<1,2	<1,2	<1,2	<1,2
Thermal expansion coefficient (10 ⁻⁶ /K-1)	<4	<4	<5	<8
Specific Heat (J/kg·K)	800-900	800-950	900-1000	950-1100
Working Temperature	<1350	<1300	<1450	<1500

CERAMIC BALLS FOR CHEMICAL INDUSTRY



Ceramic balls with high share of $Al_2O_3 \geq 99\%$ are used as catalysts in chemical industry or are used in heat exchangers.

CHEMICAL PROPERTIES:

Al_2O_3	SiO_2	CaO	TiO_2	MgO_2	FeO_3	Na_2O
$\geq 99,1\%$	$\leq 0,15\%$	$\leq 0,1\%$	$\leq 0,1\%$	$\leq 0,1\%$	$\leq 0,1\%$	$\leq 0,15\%$

PHYSICAL PROPERTIES

Bulk Density (gr/cm ³)	3,35-3,70
Packing Density (ton/m ³)	2,1-2,2
Hardness (Mohs)	9
E-Modulus (Gpa)	300-330
Specific Heat; 30°C-100°C (J/kg.K)	820-1030
Thermal Conductivity; 30°C-100°C (W/M.K)	19-30
Coefficient of Thermal Expansion 30-600°C (10 ⁻⁶ ·K ⁻¹)	7-9
Heat Resistance	Up to 1680°C

DIMENSIONS OF BALLS: we produce different sizes of CATALYST SUPPORTING BEDS from Ø 3 to Ø 60 mm.

PACKING: packed in bags with 25 kg or big bags with 1 ton.

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