

Calcium silicate, carbon fibre reinforced

CALCAST® CC 60

CALCAST® CC 60 is a carbon fibre reinforced calcium silicate, containing about 2 % carbon fibres with a maximum length of 12 mm. The material is suitable up to temperatures of 1,000 °C, is not wettable by liquid aluminium and well insulating.

CALCAST® CC 60 is characterized by a high work of fracture. This property is based on the lack of a form fit and a force lock of the carbon fibres with the calcium silicate matrix. As a result, cracks lose their fracture energy and do not lead to complete fracture. This is demonstrated by a significant fibre-pull-out in the fractured areas. The physically brittle ceramic material behaves quasi pseudoplastic when it fails.

Due to the non problematic fracture behaviour of **CALCAST® CC 60** it is an ideal material for applications where high tensile and torsion forces are present. Cracks do not lead to complete failure of the component.

Typical components are hot top rings, transition plates, header plates, spouts, casting boxes and many more parts.



SPECIAL FEATURES

- nonproblematic pseudoplastic fracture behavior
- no wetting with liquid non-ferrous metals
- dimensionally stable
- precisely machinable
- thermoshock resistant

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CALCAST® CC 60		Method	Unit				
Upper application limit temperature		EN 1094-6	°C	1,000			
Bulk density (± 10%)		EN 1602	kg/m³	850			
Open porosity (in acc. with standard)		EN 993-1	%	62			
Compression strength		EN 826	MPa	10			
Flexural strength		EN 12089	MPa	6			
Hardness		DIN 53505	Shore D	50			
Shrinkage after 12 h		EN 1094-6	%				
Length and width	750 °C					0.25	
Thickness	750 °C					0.90	
Length and width	1,000 °C					0.27	
Thickness	1,000 °C					1.30	
Thermal conductivity λ at t_m		EN 12667	W/(m K)				
	200 °C					0.18	
	400 °C					0.20	
	600 °C					0.22	
	800 °C		0.30				
Specific thermal capacity			kJ/kg K	0.8-1.2			
Coefficient of thermal expansion		DIN 51045-5	K ⁻¹ x 10 ⁻⁶				
⊥ perpendicular to board plane	RT-750°C					⊥	//
// parallel to board plane						6.4	6.4
Chemical composition			%				
Calcium silicate				97-98			
Carbon				1-3			
R _x O _x (R=Fe, Ti, K, Na)				1			
Annealing loss			%	5			
Dimensions							
Standard sizes		Tolerances					
	Length	±2; *0/+50	mm	1,000/1,500/3,000*			
	Width	0/+20	mm	1,250			
	Thickness	0/+0.8	mm	12.7/19.1/25.4/31.8/38.1/50.8/76.2/101.6			
Surfaces ground on both sides, without trimming.							
Other dimensions are available on request.							

The properties mentioned are typical values obtained according to the listed methods. Product variations have to be taken into account. The data do not represent guaranteed properties and cannot be used for any warranty claim. Data are subject to technical modifications.