

SIGRAFINE®

Materials for mechanical applications

Material data of SIGRAFINE® die-molded carbon graphite

Typical properties	Units	EK20	EK2200 ¹⁾	EK2201 ¹⁾	EK2209	EK3205	EK24	EK2240 ¹⁾	EK2241 ¹⁾²⁾	EK2243 ¹⁾	EK3245
Impregnation			Resin	Resin		Antimony		Resin	Resin	Resin	Antimony
Density	g/cm ³	1.70	1.82	1.82	1.77	2.30	1.70	1.80	1.80	1.78	2.20
Flexural strength	N/mm ²	55	75	75	65	85	60	70	70	60	80
Compressive strength	N/mm ²	155	200	200	190	260	180	200	200	190	250
Young's modulus	N/mm ²	22000	23000	23000	25000	30000	18000	19000	19000	18000	22000
Rockwell hardness	HR _{5/100}	105	110	110	110	120	105	110	110	110	120
Thermal conductivity	Wm ⁻¹ K ⁻¹	12	13	14	15	18	14	15	15	16	20
Thermal expansion (20 – 200 °C)	10 ⁻⁶ K ⁻¹	3.0	4.0	3.8	3.6	4.0	4.1	5.0	4.8	4.6	4.9
Open porosity	Vol. %	11.0	2.5	2.5	2.5	2.5	8.0	2.5	2.5	2.5	2.5
Temperature resistance in ox. atm.	°C	350	200	260	350	350	350	200	260	180	350
Temperature resistance in red. atm.	°C	1200	200	260	400	550	1200	200	260	180	550
Cylinder diameter max.	mm	580	580	580	580	370	450	450	450	450	370
Cylinder height max.	mm	200	200	200	200	200	200	200	200	200	200
Square block X max.	mm	610	330	330	330	330	610	330	330	330	330
Square block Y max.	mm	325	140	140	140	140	325	140	140	140	140
Square block Z max.	mm	130	60	60	60	60	130	60	60	60	60
Material suitability f. spec. applications		● ●	● ●	● ●	● ●	● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●

Material data of SIGRAFINE® graphite and carbon powder

Typical properties	Units	EG31	EG32	V2116	EG33	V1032	KG19	V1062
Bulk density	g/cm ³		0.37				0.5	
Top density	g/cm ³		0.63				0.90	
Real density	g/cm ³	1.98			2.07	2.16		2.00
Ash value (weight)	%	< 1.0	< 1.0	< 1.0	< 1.0			
Medium grain size d ₅₀	µm	16	28	57	17	10	19	16
Packing unit	kg	25	25			25	25	25
Grain size distribution								
< 103 µm	%	100	99		99	100	100	100
< 61 µm	%	100	87		94	100	95	96
< 30 µm	%	76	53		76	90	67	71
< 7.5 µm	%	29	12		37	41	26	30
< 2.2 µm	%	13	1.5		17	14	8	10
< 1.1 µm	%	6	0.2		8	5	3	4
Material suitability f. spec. applications		●	●	●	●	●	●	●

¹⁾ Materials are certified for use in potable water and/or in foodstuff.

²⁾ Materials are certified for use in oxygen atmosphere.

● Wet running ● Dry running ● Mixed running ● High loaded ● Fillers for compounds

Material data of SIGRAFINE® carbon graphite PTS (high volume)

Typical properties	Units	EK2230 ¹⁾	EK2239	EK3235	EK25	EK2250	EK3255
Impregnation		Resin		Antimony		Resin	Antimony
Density	g/cm ³	1.85	1.80	2.47	1.69	1.80	2.15
Flexural strength	N/mm ²	60	55	65	45	50	75
Compressive strength	N/mm ²	160	150	210	125	160	220
Young's modulus	N/mm ²	22000	20000	30000	16000	17000	21000
Rockwell hardness	HR _{5/100}	110	105	105	100	110	120
Thermal conductivity	Wm ⁻¹ K ⁻¹	14	15	20	9	10	12
Thermal expansion [20 – 200 °C]	10 ⁻⁶ K ⁻¹	6.5	4.5	5.1	4.5	5.1	5.2
Open porosity	Vol. %	2.5	2.5	2.5	7.0	2.5	2.5
Temperature resistance in ox. atm.	°C	200	350	350	350	200	350
Temperature resistance in red. atm.	°C	200	400	550	950	200	550
Cylinder diameter max.	mm	90	90	90	90	90	90
Cylinder height max.	mm	45	45	45	45	45	45
Square block X max.	mm	110	110	110			
Square block Y max.	mm	115	115	115			
Square block Z max.	mm	25	25	25			
Material suitability f. spec. applications		●	●	●	● ●	● ●	● ●

Material data of SIGRAFINE® graphite and resin bonded graphite

Typical properties	Units	EK40 ²⁾	EK200 ¹⁾	EK201 ¹⁾²⁾	EK203 ¹⁾	EK204	EK305 ²⁾	V1626	EK60
Impregnation			Resin	Resin	Resin	Salt	Antimony	Salt	
Density	g/cm ³	1.70	1.82	1.82	1.80	1.78	2.55	1.85	1.73
Flexural strength	N/mm ²	35	50	50	40	40	80	58	80
Compressive strength	N/mm ²	100	200	200	160	140	290	150	120
Young's modulus	N/mm ²	10000	13000	13000	13000	13000	21000	13000	22000
Rockwell hardness	HR _{5/100}	95	115	115	115	105	115	90	80
Thermal conductivity	Wm ⁻¹ K ⁻¹	25	26	26	26	27	33	73	6
Thermal expansion [20 – 200 °C]	10 ⁻⁶ K ⁻¹	4.5	6.8	6.2	5.6	4.6	6.0	4.0	11.0
Open porosity	Vol. %	14.0	2.5	2.5	2.5	12.0	2.5	10.0	No
Temperature resistance in ox. atm.	°C	500	200	260	180	600	500	600	180 ³⁾
Temperature resistance in red. atm.	°C	2600	200	260	180	1200	550	1200	180 ³⁾
Cylinder diameter max.	mm	220	220	220	220	220	220		
Cylinder height max.	mm	260	260	260	260	260	260		
Square block X max.	mm	310	310	310	310	310	310	330	385
Square block Y max.	mm	130	130	130	130	130	130	240	235
Square block Z max.	mm	73	73	73	73	73	73	6.5	8.8
Material suitability f. spec. applications		●	●	●	●	●	● ● ●	●	●

¹⁾ Materials are certified for use in potable water and/or in foodstuff.

²⁾ Materials are certified for use in oxygen atmosphere.

³⁾ Brief maximum application temperature. Physical values can change with lasting temperature load.

● Wet running ● Dry running ● Mixed running ● High loaded ● Vanes



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