

Schunk Industry

Characteristics standard materials

schunk-carbontechnology.com

Nomenclature of material grades

Our carbon and graphite materials are processed under strictly defined manufacturing processes using specified raw or treated materials. For more information on the manufacture, design and application of these materials, follow the QR-Code located on the back of this brochure, or visit www.schunk-group.com.

Schunk offers three different groups of carbon materials for mechanical applications. These groups are identified by the two initial letters of the grade code:
FH ... carbon graphite
FE... electrographite
FF... resin bonded carbon

The two figures following these initial letters identify the different grades within the material groups.
Examples: FH42, FE45, FF52

A third figure indicates special molding processes:
...1 pressing to size or partially pressing to size
...9 isostatic pressing (only applies to FH and FE grades)
Examples: FH821, FH429, FF521

Additional processing steps such as impregnations with metals, resins or special salts are indicated by a final letter or letter/figure combination:

A	antimony impregnation
C	copper impregnation
Z2, Z5	impregnation with phenolic resin
ZH2, ZH5	impregnation with phenolic resin for applications up to 260 °C
ZP2, ZP5	impregnation with polyester resin
Y2, Y5	redensification with carbon
Q	inorganic salt impregnation

Examples: FH82A, FH42Z2/Z5, FH82ZH2/ZH5, FH42ZP2/ZP5, FE45S, FH42Y2, FE679Q

Z2, ZH2, ZP2:
low residual porosity

Z5, ZH5, ZP5:
tight, gas leakage test on demand

The following table shows the physical data of a selection of Schunk materials for mechanical applications. For special applications a multitude of other materials are available. One of these materials is SiC30. This unique silicon carbide / graphite composite material is problem solver or even already standard in various critical applications, where it is able to substitude carbon and silicon carbide materials.

CHARACTERISTIC DATA STANDARD MATERIALS

Material type		Temperature limit		Flexural strength	Compressive strength	Young's modulus	Rockwell Hardness (HR)			Hardness Brinell	Bulk density	Porosity	Coefficient of thermal expansion (vertical to the pressing direction)		Thermal conductivity	Typical application fields
		Oxidizing atmosphere °C	Inert atmosphere °C	MPa	MPa	GPa	5/40	5/100	5/150	HB 5/62,5	g/cm³	Vol.-%	20-200 °C x 10^{-6}/K	200-600 °C x 10^{-6}/K	W/mK	
-FH42-	carbon graphite	350	1200	50	150	18	–	95	–	40	1.65	11	4.0	4.4	11	Segmented seal rings, wet running bearings in liquid media and under dry running conditions at low speed.
-FH42Y3-	carbon graphite	350	1200	55	170	18	–	110	–	60	1.65	10	4.2	5.0	12	Bearings in liquid media, subjected to higher loads (e. g. in chemical pumps and flow meters).
-FH82Y5-	carbon graphite	350	1200	70	250	24	–	–	110	80	1.80	*	4.4	4.8	10	Sliding rings and bearings subjected to high loads, even at elevated temperatures and in chemically aggressive media.
-FE45S-	electrographite	500	2500	40	100	10	105	–	–	25	1.70	15	3.6	4.2	65	Segmented seal rings and metal-clad seal rings.
-FE45Y2-	electrographite	500	2500	40	100	12	–	85	–	30	1.70	8	3.6	4.2	65	Segmented seals, labyrinth rings and mechanical seals; dry and wet running bearings used at high temperatures and in chemically aggressive metal-containing and non-metal-containing media.
-FH42Z(H)2-	carbon graphite resin impregnated	200 (260)	200 (260)	60	210	18	–	115	–	75	1.75	2	4.6	–	11	Bearings subjected to higher loads and used in liquid media; impregnated vanes for rotary pumps and flow meters; sliding rings; pump components.
-FH42Z(H)5-	carbon graphite resin impregnated	200 (260)	200 (260)	60	210	18	–	115	–	75	1.75	*	4.6	–	11	Sealing rings for mechanical seals and steam joint seals applied at high load; impregnated highly loaded thrust bearings.
-FH82Z(H)2-	carbon graphite resin impregnated	200 (260)	200 (260)	75	250	24	–	–	110	80	1.80	2	4.7	–	8	Mechanical seals.
-FH82Z(H)5-	carbon graphite resin impregnated	200 (260)	200 (260)	75	250	24	–	–	110	80	1.80	*	4.7	–	8	Sealing rings for mechanical seals and steam joint seals applied at high load; highly loaded thrust bearings.
-FE45Z(H)2-	electrographite resin impregnated	200 (260)	200 (260)	45	150	12	–	100	–	45	1.75	3	4.1	–	65	Segmented and mechanical seals; dry running carbon bearings; carbon bearings used in aggressive media.
-FH71Z(H)5-	carbon graphite resin impregnated	200 (260)	200 (260)	75	170	27	–	105	–	50	2.80	*	7.0	–	6	Dry running seals and bearings, especially for extremely low humidity.
-FH42A-	carbon graphite antimony impregnated	350	600	80	250	24	–	–	120	115	2.30	*	4.2	5.5	13	Highly loaded sealing rings and carbon bearings applied in liquids and liquefied gases.
-FH42C-	Kohlenstoffgraphit kupferimprägniert	350	1000	85	300	25	–	–	110	75	2.35	2	4.5	55	18	Für Gleitringe und Kohlenstofflager.
-FH71A-	carbon graphite antimony impregnated	300	600	85	240	35	–	–	120	115	3.30	*	6.4	–	9	Dry running seals and bearings, especially for extremely low humidity and liquefied gases.
-FH82A-	carbon graphite antimony impregnated	350	600	90	350	26	–	–	120	115	2.25	*	4.5	5.0	9	Highly loaded mechanical seals, even at high temperatures; highly loaded thrust bearings.
-FE45A-	electrographite antimony impregnated	500	600	65	170	16	–	115	–	75	2.50	*	4.5	5.0	67	Carbon bearings and mechanical seals applied at high temperatures.
-FE65-	electrographite salt impregnated	600	1000	45	110	13	110	–	–	30	1.80	8	3.1	4.2	65	Dry running carbon vanes and bearings applied at high temperatures.
-FE679Q-	electrographite salt impregnated	600	1000	70	145	15	–	110	–	60	1.85	8	4.0	5.0	45	Dry running vanes.
-FF521-	resin bonded carbon	180	180	60	145	20	–	105	–	50	1.75	1	23.0	–	5	Small parts pressed to size in series production such as mechanical seals, bearings, and components used in pumps.
-FC941-	carbon graphite	350	1200	–	–	–	–	–	–	–	1.75	3	–	–	–	Small parts pressed to size in series production evaluated temperatures and in chemical aggresive media.
SiC30	silicon carbide / graphite composite material	500	2300	140	500	140	–	–	–	–	2.65	*	3.0	4.0	125	See our brochure „SiC30 - Silicon Carbide / Graphite Composite Material".

* gas tightness inspection on request

This data is provided as typical values based on our experience. As with any raw material or manufacturing process, variations can occur.
Consequently, such values are not guaranteed and are subject to change without notice.

Contact person

Germany

Schunk Kohlenstofftechnik GmbH
Germany/Heuchelheim
Phone +49 641 608 0
E-Mail tribology@schunk-group.com

Europe

Schunk Carbon Technology AB
Sweden/Lenhovda
Phone +46 474 295 00
E-Mail info@schunk.se

Schunk Carbon Technology Limited
Great Britain/Pudsey
Phone +44 113 256 3496
E-Mail inbox.suk@schunk-group.com

Schunk Carbon Technology B.V.
Netherlands/Rotterdam
Phone +31 10 414 4766
E-Mail info@schunk-group.com

Schunk Carbon Technology S.A.S.
France/Nanterre
Phone +33 1 419 5252
E-Mail schunk.france@schunk-group.com

Schunk Ibérica S.A.
Spain/Pinto
Phone +34 91 691 2511
E-Mail mail@schunk.es

Schunk Portugal Lda.
Portugal/Marinha Grande
Phone +351 244 572 480
E-Mail sede@schunk.pt

Schunk Carbon Technology S.r.l.
Italy/Magenta
Phone +39 02 972 190 1
E-Mail info@schunkitalia.it

Schunk Carbon Technology s.r.o.
Czech Republic/Prag
Phone +420 377 454 120
E-Mail inbox-cee.sct-cz@schunk-group.com

Schunk Carbon Technology SRL
Romania/Bukarest
Phone +40 21 337 2859
E-Mail office@ro.schunk-group.com

America

Schunk Carbon Technology, LLC
USA/Menomonee Falls
Phone +1 262 253 8720
E-Mail info@us-schunk-group.com

Schunk Carbon Technology S.A. de C.V.
Mexico/Ocoyoacac
Phone +52 728 282 7890
E-Mail informacion@schunk.com.mx

Schunk do Brasil Electrografites Ltda.
Brasil/São Paulo
Phone +55 11 4613 3202
E-Mail sales.0040@schunk-group.com

Australia

Schunk Carbon Technology Pty Ltd
Australia/Scoresby
Phone +61 3 97 53 35 88
E-Mail admin@schunk-com.au

Asia

Schunk Carbon Technology (Suzhou) Co., Ltd.
China/Suzhou
Phone +86 5 12 63 19 80 98
E-Mail scc@schunkchina.com

Schunk Carbon Technology Ltd.
China/Hong Kong
Phone +852 2 408 6688
E-Mail info.sgc@hk.schunk-group.com

Schunk Carbon Technology Ltd
South Korea/Ansan-City
Phone +82 31 491 2722
E-Mail young-kyu.song@kr.schunk-group.com

Schunk Carbon Technology India Private Limited
India/Bangalore
Phone +91 80 6703 8500 504
E-Mail info.sct-in@schunk-group.com

Schunk Carbon Technology Japan KK
Yokohama/Japan
Phone +81 45 470 2551
E-Mail office@jp.schunk-group.com

SCHUNK GROUP

ENGINEERING COMPETENCE IN MATERIALS TECHNOLOGY AND MECHANICAL ENGINEERING

The Schunk Group is a global technology group. The company is a leading supplier of products made of high-tech materials – such as carbon, technical ceramics and sintered metal – as well as machines and systems – from environmental simulation to air conditioning technology and ultrasonic welding to optical machines. The Schunk Group has around 10,000 employees in 26 countries and generated sales of € 1.7 billion in 2025.

The business unit industry develops and manufactures components made from carbon, graphite, carbon fiber reinforced carbon (CFC) and silicon carbide, among other materials. These are used in mechanical, electrical and thermal applications, for example as sealing rings, plain bearings and pump components, as carbon brushes for power transmission in household appliances or wind turbines, or in heat treatment, semiconductor production or analytical technology.



30.14e/50/2026

Schunk Kohlenstofftechnik GmbH
Rodheimer Strasse 59
35452 Heuchelheim ¬ Germany
Phone +49 641 6080
Fax +49 641 608 1726
E-Mail tribology@schunk-group.com
schunk-carbontechnology.com

All specifications are subject to technical change. Texts and pictures are subject to copyright laws.
Use of the content is not permitted without the written consent of Schunk GmbH.