

# Werkstoffe für mechanische Anwendungen

# Materials for Mechanical Applications

## SGL Carbon's Graphite Specialties

|  | Marke<br>Grade      | Imprägnierung<br>Impregnation | Dichte g/cm <sup>3</sup><br>Density g/cc | Biegefestigkeit MPa<br>Flexural strength psi | Druckfestigkeit MPa<br>Compressive strength psi | E-Modul GPa<br>Young's Modulus<br>psi x 10 <sup>6</sup> | Härte Rockwell B<br>Rockwell hardness | Hardness shore<br>scleroscope C | Thermische Leitfähigkeit<br>W/m K<br>Thermal conductivity<br>Btu x hr-1 x ft-1 x °F-1 | Therm. Ausdehnungs-<br>koeffizient x 10 <sup>-6</sup> K <sup>-1</sup><br>(20-200 °C)<br>Coefficient of thermal<br>expansion<br>in/in/°F x 10-6 | Offene Porosität Vol. %<br>Porosity (open) Vol. % | Temperaturbeständigkeit<br>°C in ox. Atm.<br>Temperature resistance<br>°F in ox. atm. | Temperaturbeständigkeit<br>°C in red. Atm.<br>Temperature resistance<br>°F in red. atm. | Rund* (mm) Durchmesser<br>Cylinder* (Inch) Diameter | Rund* (mm) Höhe<br>Cylinder* (Inch) Height | Quader* (mm) X<br>Square Block* (Inch) X | Quader* (mm) Y<br>Square Block* (Inch) Y | Quader* (mm) Z<br>Square Block* (Inch) Z | Hauptanwendungen<br>Typical applications |       |       |       |          |       |         |     |     |          |          |        |  |  |
|--|---------------------|-------------------------------|--|--|---|---|---------------------------------------|---------------------------------|---|--|---|---|---|---|--|--|--|--|--|-------|-------|-------|----------|-------|---------|-----|-----|----------|----------|--------|--|--|
| Kohlegraphit<br>Carbon-graphite                    | EK 20*              | –                             | 1,70                                     | 55   | 8,000   | 155   | 22,500                                | 22,0                            | 3,2   | 105  | HR 5/100  | 88  | 12  | 7   | 3,0  | 1,7                                      | 11,0                                     | 350                                      | 660                                      | 1.200 | 2,200 | 530   | 20 13/16 | 200   | 7 13/16 | 330 | 140 | 60       | 12 15/16 | 5 1/2  | 2 5/16   | Lager im Nasslauf<br>Wet running bearings  |
|  | EK 2200*            | Kunstharz/Resin               | 1,82                                     | 75   | 11,000  | 200   | 29,000                                | 23,0                            | 3,4   | 110  | HR 5/100  | 93  | 13  | 7,5   | 4,0  | 2,2                                      | 2,5                                      | 200                                      | 400                                      | 200   | 400   | 530   | 20 13/16 | 200   | 7 13/16 | 330 | 140 | 60       | 12 15/16 | 5 1/2  | 2 5/16   | Hoch belastete Dichtungen, Lager<br>High loaded seals, bearings  |
|  | EK 2201*            | Kunstharz/Resin               | 1,82                                     | 75   | 11,000  | 200   | 29,000                                | 23,0                            | 3,4   | 110  | HR 5/100  | 93  | 14  | 8   | 3,8  | 2,1                                      | 2,5                                      | 260                                      | 500                                      | 260   | 500   | 530   | 20 13/16 | 200   | 7 13/16 | 330 | 140 | 60       | 12 15/16 | 5 1/2  | 2 5/16   | Dichtungen, Lager<br>Seals, bearings   |
|  | EK 2203*            | Kunstharz/Resin               | 1,80                                     | 70   | 10,000  | 195   | 28,500                                | 22,0                            | 3,2   | 110  | HR 5/100  | 93  | 14  | 8   | 3,8  | 2,1                                      | 2,5                                      | 180                                      | 350                                      | 180   | 350   | 530   | 20 13/16 | 200   | 7 13/16 | 330 | 140 | 60       | 12 15/16 | 5 1/2  | 2 5/16   | Dichtungen, Lager<br>Seals, bearings   |
|  | EK 2209             | –                             | 1,77                                     | 65   | 9,500   | 190   | 27,500                                | 25,0                            | 3,7   | 110  | HR 5/100  | 93  | 15  | 8,5   | 3,6  | 2,0                                      | 2,5                                      | 350                                      | 660                                      | 400   | 750   | 530   | 20 13/16 | 200   | 7 13/16 | 330 | 140 | 60       | 12 15/16 | 5 1/2  | 2 5/16   | Hoch belastete Dichtungen, Lager<br>High loaded seals, bearings  |
|  | EK 3205             | Antimon/Antimony              | 2,30                                     | 85   | 12,500  | 260   | 37,500                                | 30,0                            | 4,4   | 120  | HR 5/100  | 106   | 18  | 10,5  | 4,0  | 2,2                                      | 2,5                                      | 350                                      | 660                                      | 550   | 1,000 | 530   | 20 13/16 | 200   | 7 13/16 | 330 | 140 | 60       | 12 15/16 | 5 1/2  | 2 5/16   | Hoch belastete Dichtungen, Lager<br>High loaded seals, bearings  |
|  | EK 2230*            | Kunstharz/Resin               | 1,85                                     | 60   | 8,500   | 160   | 23,000                                | 22,0                            | 3,2   | 110  | HR 5/100  | 93  | 14  | 8   | 6,5  | 3,6                                      | 2,5                                      | 200                                      | 400                                      | 200   | 400   | 72    | 2 3/4    | 45    | 1 3/4   | 110 | 115 | 25       | 4 5/16   | 4 1/2  | 15/16  | Lager, Dichtungen für Großserie<br>High volume seals, bearings   |
|  | EK 2239             | –                             | 1,80                                     | 55   | 8,000   | 150   | 21,500                                | 20,0                            | 2,9   | 105  | HR 5/100  | 88  | 15  | 9   | 4,5  | 2,5                                      | 2,5                                      | 350                                      | 660                                      | 400   | 750   | 72    | 2 3/4    | 45    | 1 3/4   | 110 | 115 | 25       | 4 5/16   | 4 1/2  | 15/16  | Lager, Dichtungen für Großserie<br>High volume seals, bearings   |
|  | EK 3235             | Antimon/Antimony              | 2,47                                     | 65   | 9,500   | 210   | 30,500                                | 30,0                            | 4,4   | 105  | HR 5/150  | -   | 20  | 12  | 5,1  | 2,8                                      | 2,5                                      | 350                                      | 660                                      | 550   | 1,000 | 72    | 2 3/4    | 45    | 1 3/4   | 110 | 115 | 25       | 4 5/16   | 4 1/2  | 15/16  | Lager, Dichtungen für Großserie<br>High volume seals, bearings   |
|  | EK 24               | –                             | 1,70                                     | 60   | 8,500   | 180   | 26,000                                | 18,0                            | 2,6   | 105  | HR 5/100  | 88  | 14  | 8   | 4,1  | 2,3                                      | 8,0                                      | 350                                      | 660                                      | 1.200 | 2,200 | 580   | 22 13/16 | 200   | 7 13/16 | 610 | 325 | 130      | 24       | 12 3/4 | 5 1/16   | Lager, Dichtungen für Großserie,<br>Trockenlauf, Mischreibung<br>Seals, bearings for dry running, mixed<br>running |
|  | EK 2240*            | Kunstharz/Resin               | 1,80                                     | 70   | 10,000  | 200   | 29,000                                | 19,0                            | 2,8   | 110  | HR 5/100  | 93  | 15  | 8,5   | 5,0  | 2,8                                      | 2,5                                      | 200                                      | 400                                      | 200   | 400   | 580   | 22 13/16 | 200   | 7 13/16 | 610 | 325 | 130      | 24       | 12 3/4 | 5 1/16   | Lager, Dichtungen für Großserie,<br>Trockenlauf, Mischreibung<br>Seals, bearings for dry running, mixed<br>running |
|  | EK 2241**           | Kunstharz/Resin               | 1,80                                     | 70   | 10,000  | 200   | 29,000                                | 19,0                            | 2,8   | 110  | HR 5/100  | 93  | 15  | 8,5   | 4,8  | 2,6                                      | 2,5                                      | 260                                      | 500                                      | 260   | 500   | 580   | 22 13/16 | 200   | 7 13/16 | 610 | 325 | 130      | 24       | 12 3/4 | 5 1/16   | Lager, Dichtungen für Großserie,<br>Trockenlauf, Mischreibung<br>Seals, bearings for dry running, mixed<br>running |
|  | EK 2243*            | Kunstharz/Resin               | 1,78                                     | 60   | 8,500   | 190   | 27,500                                | 18,0                            | 2,6   | 110  | HR 5/100  | 93  | 16  | 9   | 4,6  | 2,5                                      | 2,5                                      | 180                                      | 350                                      | 180   | 350   | 580   | 22 13/16 | 200   | 7 13/16 | 610 | 325 | 130      | 24       | 12 3/4 | 5 1/16   | Lager, Dichtungen für Großserie,<br>Trockenlauf, Mischreibung<br>Seals, bearings for dry running, mixed<br>running |
|  | EK 3245             | Antimon/Antimony              | 2,20                                     | 80   | 11,500  | 250   | 36,000                                | 22,0                            | 3,2   | 120  | HR 5/100  | 106   | 20  | 12  | 4,9  | 2,7                                      | 2,5                                      | 350                                      | 660                                      | 550   | 1,000 | 580   | 22 13/16 | 200   | 7 13/16 | 610 | 325 | 130      | 24       | 12 3/4 | 5 1/16   | Lager, Dichtungen für Großserie,<br>Trockenlauf, Mischreibung<br>Seals, bearings for dry running,<br>mixed running |
| EK 25  | –                   | 1,69                          | 45                                       | 6,500  | 125   | 18,000  | 16,0                                  | 2,3                             | 100   | HR 5/100   | 82  | 9   | 5   | 4,5   | 2,5  | 7,0                                      | 350                                      | 660                                      | 950                                      | 1,750 | 72    | 2 3/4 | 45       | 1 3/4 | –       | –   | –   | –        | –        | –      | Lager, Dichtungen für Großserie,<br>Trockenlauf, Mischreibung<br>Seals, bearings for dry running,<br>mixed running |  |
| EK 2250  | Kunstharz           | 1,80                          | 50                                       | 7,000  | 160   | 23,000  | 17,0                                  | 2,5                             | 110   | HR 5/100   | 93  | 10  | 6   | 5,1   | 2,8  | 2,5                                      | 200                                      | 400                                      | 200                                      | 400   | 72    | 2 3/4 | 45       | 1 3/4 | –       | –   | –   | –        | –        | –      | Lager, Dichtungen für Großserie,<br>Trockenlauf, Mischreibung<br>Seals, bearings for dry running,<br>mixed running |  |
| EK 3255  | Antimon             | 2,15                          | 75                                       | 11,000                                       | 220   | 32,000  | 21,0                                  | 3,0                             | 120   | HR 5/100   | 106   | 12  | 7   | 5,2   | 2,9  | 2,5                                      | 350                                      | 660                                      | 550                                      | 1,000 | 72    | 2 3/4 | 45       | 1 3/4 | –       | –   | –   | –        | –        | –      | Lager, Dichtungen für Großserie,<br>Trockenlauf, Mischreibung<br>Seals, bearings for dry running,<br>mixed running |  |
| Graphit<br>Graphite                                | EK 40**             | –                             | 1,70                                     | 35   | 5,000   | 100   | 14,500                                | 10,0                            | 1,5   | 95   | HR 5/100  | 66  | 25  | 14  | 4,5  | 2,5                                      | 14,0                                     | 500                                      | 950                                      | 2.500 | 4,550 | 220   | 8 5/8    | 260   | 10 3/16 | 330 | 140 | 73       | 12 15/16 | 5 1/2  | 2 13/16  | Lager, Dichtungen für Kompressoren<br>Seals, bearings for dry running  |
|  | EK 200*             | Kunstharz/Resin               | 1,82                                     | 50   | 7,000   | 200   | 29,500                                | 13,0                            | 1,9   | 115  | HR 5/100  | 93  | 26  | 15  | 6,8  | 3,7                                      | 2,5                                      | 200                                      | 400                                      | 200   | 400   | 220   | 8 5/8    | 260   | 10 3/16 | 330 | 140 | 73       | 12 15/16 | 5 1/2  | 2 13/16  | Lager, Dichtungen für Kompressoren<br>Seals, bearings for dry running  |
|  | EK 201**            | Kunstharz/Resin               | 1,82                                     | 50   | 7,000   | 200   | 29,500                                | 13,0                            | 1,9   | 115  | HR 5/100  | 93  | 26  | 15  | 6,2  | 3,4                                      | 2,5                                      | 260                                      | 500                                      | 260   | 500   | 220   | 8 5/8    | 260   | 10 3/16 | 330 | 140 | 73       | 12 15/16 | 5 1/2  | 2 13/16  | Lager, Dichtungen für Kompressoren<br>Seals, bearings for dry running  |
|  | EK 203*             | Kunstharz/Resin               | 1,80                                     | 40   | 6,000   | 160   | 23,000                                | 13,0                            | 1,9   | 115  | HR 5/100  | 93  | 26  | 15  | 5,6  | 3,1                                      | 2,5                                      | 180                                      | 350                                      | 180   | 350   | 220   | 8 5/8    | 260   | 10 3/16 | 330 | 140 | 73       | 12 15/16 | 5 1/2  | 2 13/16  | Lager, Dichtungen für Kompressoren<br>Seals, bearings for dry running  |
|  | EK 204              | Salz /Salt                    | 1,78                                     | 40   | 6,000   | 140   | 20,500                                | 13,0                            | 1,9   | 105  | HR 5/100  | 66  | 27  | 16  | 4,6  | 2,6                                      | 12,0                                     | 600                                      | 1,100                                    | 1.200 | 2,200 | 220   | 8 5/8    | 260   | 10 3/16 | 330 | 140 | 73       | 12 15/16 | 5 1/2  | 2 13/16  | Lager, Dichtungen für Kompressoren<br>Seals, bearings for dry running  |
|  | EK 305^             | Antimon/Antimony              | 2,55                                     | 80   | 11,500  | 290   | 42,000                                | 21,0                            | 3,0   | 115  | HR 5/100  | 106   | 33  | 19  | 6,0  | 3,3                                      | 2,5                                      | 500                                      | 950                                      | 550   | 1,000 | 220   | 8 5/8    | 260   | 10 3/16 | 330 | 140 | 73       | 12 15/16 | 5 1/2  | 2 13/16  | Lager, Dichtungen für Kompressoren<br>Seals, bearings for dry running  |
| V 1626   | Salz /Salt          | 1,85                          | 58                                       | 8,500  | 150   | 21,500  | 13,0                                  | 1,9                             | 90  | HR 5/100   | 73  | 73  | 46  | 4,0   | 2,2  | 10,0                                     | 600                                      | 1,100                                    | 1.200                                    | 2,200 | –     | –     | –        | –     | 330     | 240 | 6,5 | 12 15/16 | 9 7/16   | 1/4    | Trennschieber f. hochbel. Kompressoren<br>Vanes for high loaded compressors  |  |
| Kunstharz-gebund. Graphit<br>Resin Bonded Graphite | EK 60               | –                             | 1,73                                     | 80   | 11,500  | 120   | 17,500                                | 22,0                            | 3,2   | 80   | HR 5/100  | 66  | 6   | 3,5   | 11,0*                                      | 6,1                                      | Keine/No                                 | 180                                      | 350                                      | 180   | 400   | –     | –        | –     | –       | 385 | 235 | 8,8      | 15 1/8   | 9 1/4  | 5/16   | Trennschieber für Vielzellenverdichter<br>Vanes for compressors  |
|  | V 1754              | –                             | 1,72                                     | 80   | 11,500  | 120   | 17,500                                | 23,0                            | 3,4   | 80   | HR 5/100  | 66  | 6   | 3,5   | 12,0*                                      | 6,7                                      | Keine/No                                 | 220                                      | 428                                      | 220   | 430   | –     | –        | –     | –       | 385 | 235 | 8,8      | 15 1/8   | 9 1/4  | 5/16   | Trennschieber für Vielzellenverdichter<br>Vanes for compressors  |
|  | V 1771 <sup>1</sup> | –                             | 1,69                                     | 70   | 10,000  | 150   | 21,500                                | 17,0                            | 2,5   | 100  | HR 5/100  | 93  | 5   | 2,9   | 18,0*                                      | 9,9                                      | Keine/No                                 | 220                                      | 428                                      | 220   | 430   | –     | –        | –     | –       | 385 | 235 | 8,8      | 15 1/8   | 9 1/4  | 5/16   | Trennschieber für Großserie<br>Vanes for high volume compressors   |
|  | V 1352 <sup>1</sup> | –                             | 1,62                                     | 75   | 11,000  | 200   | 29,000                                | 18,0                            | 2,6   | 110  | HR 5/100  | 73  | 2   | 1   | 17,0*                                      | 9,4                                      | Keine/No                                 | 180                                      | 350                                      | 180   | 400   | 77/30 | –        | 8/110 | –       | 385 | 235 | 10       | 15 1/8   | 9 1/4  | 3/8  | Bauteile für Kompressoren, Pumpen<br>Parts for compressors, pumps  |
|  | V 1640*             | –                             | 1,69                                     | 85   | 12,500  | 210   | 30,500                                | 14,0                            | 2,0   | 110  | HR 5/100  | 88  | 3   | 2   | 16,0*                                      | 8,9                                      | Keine/No                                 | 180                                      | 350                                      | 180   | 400   | 77/30 | –        | 8/110 | –       | 385 | 235 | 10       | 15 1/8   | 9 1/4  | 3/8  | Bauteile für Kompressoren, Pumpen<br>Parts for compressors, pumps  |

\* Maximale Abmessungen in mm / Maximum dimensions in mm

♦ Für diese Werkstoffe liegen Atteste zur Verwendung im Trinkwasser und/oder im Kontakt mit Lebensmitteln vor / Materials are certified for use in potable water and/or in foodstuff

▲ Für diese Werkstoffe liegen Atteste für die Anwendung in Sauerstoffatmosphäre vor / Materials are certified for use in oxydizing atmosphere

\* 20-150 °C

<sup>1</sup> RIDURID®

|  | Marke<br>Grade | Schüttdichte g/cm <sup>3</sup><br>Bulk density gm/cc | Rütteldichte g/cm <sup>3</sup><br>Top density gm/cc | Wahre Dichte g/cm <sup>3</sup><br>Real density gm/cc | Blaine Spez.<br>Oberfläche cm <sup>2</sup> /g<br>Spec. surface acc.<br>to Blaine cm <sup>2</sup> /g | Aschwert (Gewicht) %<br>Ash value (weight) % | Korngrößen-<br>verteilung<br>(Cilas<br>Granulometer<br>715) |             |             |            |            |            | Grain size<br>distribution<br>(Cilas<br>Granulometer<br>715) |                 |                 |               |              | Verpackungseinheit kg | Packing unit lb | Hauptanwendungen<br>Typical applications |  |
|--|----------------|--|---|--|---|--|---|-------------|-------------|------------|------------|------------|--|-----------------|-----------------|---------------|--------------|-----------------------|-----------------|--|--|
|  |                |  |   |  |   |  | <96 µm<br>%   | <64 µm<br>% | <32 µm<br>% | <8 µm<br>% | <2 µm<br>% | <1 µm<br>% | <3,780 µin<br>%  | <2,520 µin<br>% | <1,260 µin<br>% | <315 µin<br>% | <39 µin<br>% |                       |                 |  |  |
| Graphit- und Koksgrüße<br>Graphite and carbon powder | EG 31          | 0,55   | –   | 2,02   | 7.200   | 0.548  | <1,0  | 100         | 99          | 72         | 28         | 11         | –  | 100             | 97              | 67            | 26           | 5                     | 25              | 154                                      | Graphitfüller: hochverschleißfest, hervorragende Oxidations- und Korrosionsbeständigkeit<br><i>Graphite powder with high resistivity against wear, oxidation and corrosion</i> |
|  | EG 32          | 0,33   | 0,63  | –  | 6.700   | 0.672  | <1,0  | 97          | 88          | 60         | 11         | –          | 0,3  | 94              | 82              | 57            | 13           | 1                     | 25              | 154                                      | Graphitfüller mit gutem Gleitvermögen<br><i>Graphite powder with good tribological properties</i>  |
|  | V 1032         | 0,30   | 0,50  | 2,13   | 11.700  | –  | –   | –           | 99          | 91         | 35         | –          | 1  | –               | –               | –             | –            | –                     | 25              | 154                                      | Graphitfüller<br><i>Graphite powder</i>  |
|  | KG 19          | 0,45   | 0,90  | –  | 6.900   | 0.69   | –   | 99,9        | 96          | 75         | 25         | –          | 2  | 99,9            | 96              | 75            | 25           | 2                     | 25              | 154                                      | Koksfüller<br><i>Carbon powder</i>   |
|  | V 1062         | –  | –   | 2,00   | 7.500   | –  | –   | 100         | 97          | 79         | 30         | 7          | –  | –               | –               | –             | –            | –                     | 25              | 154                                      |  |

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Diese Angaben entsprechen dem aktuellen Stand unserer Produktkenntnisse und sollen allgemein über unsere Produkte und deren Anwendungsmöglichkeiten informieren. Im Hinblick auf die Unterschiedlichkeit der möglichen Anwendungen sind die Angaben nur als allgemeine Information zu verstehen, die keine bestimmten Eigenschaften der Produkte für jeden konkreten Einsatzfall garantieren. Im Auftragsfall sind daher die für den Anwendungsfall erforderlichen Eigenschaften konkret bei uns abzufragen. Unser technischer Service wird auf Anfrage dann umgehend ein Eigenschaftsprofil für den konkreten Anwendungszweck mitteilen.

*This document has been prepared according to the best current knowledge and is intended to provide general information about our products and their use. In view of the wide variety of possible applications, the above data should be regarded as general information and are no guarantee of certain features of our products in a given case. If you favour us with your order, please ask for information regarding the features needed for the proposed application. Our Technical Service will furnish a feature profile for such application without undue delay.*



**Graphite Specialties**

**Automotive and Mechanical Applications**

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