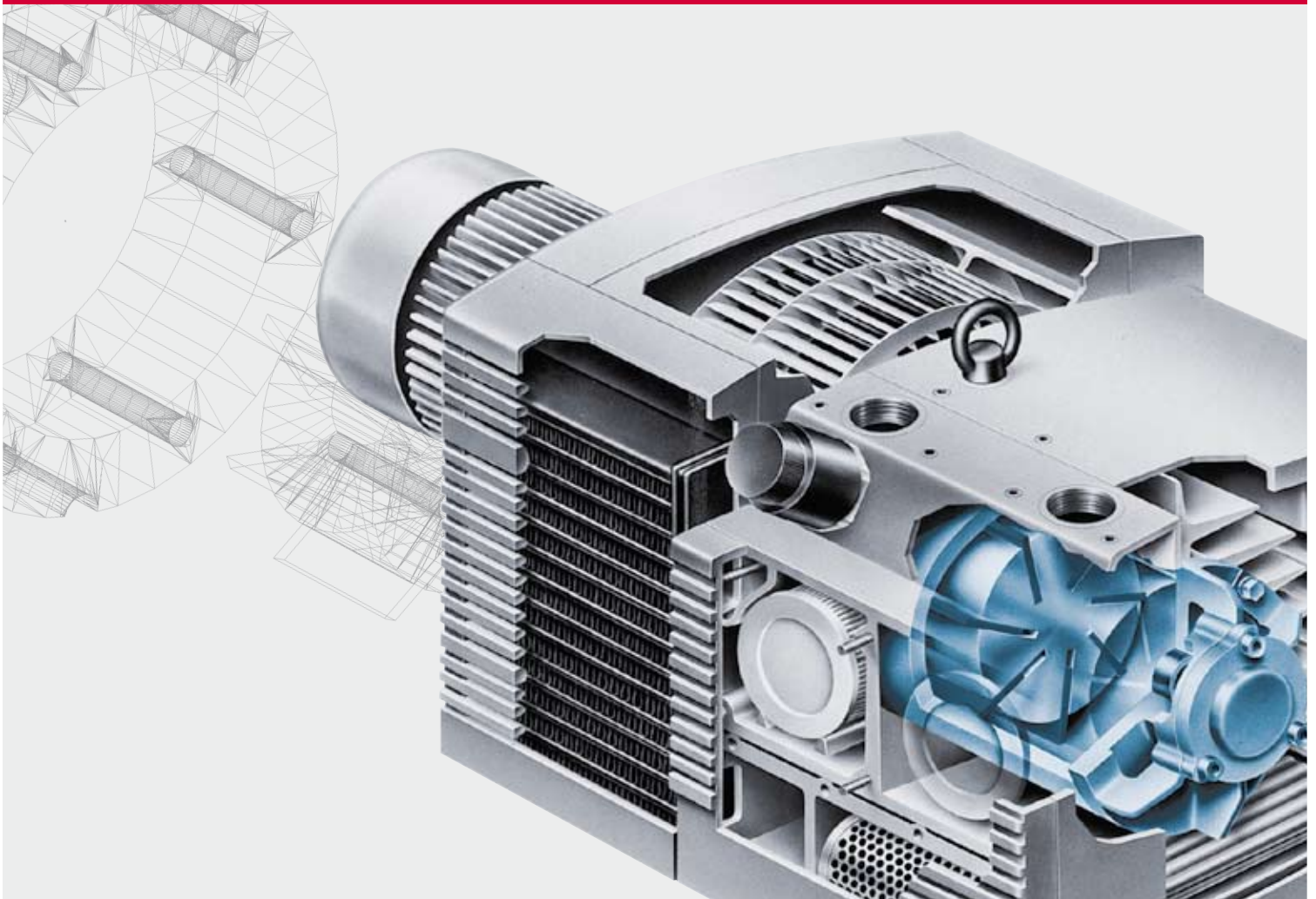


Carbon and Graphite Materials for Dry-Running Compressors and Vane-Type Vacuum Pumps

Automotive & Mechanical Applications



Broad Base. Best Solutions.



SCENIC PRECISE ELEMENT INC.
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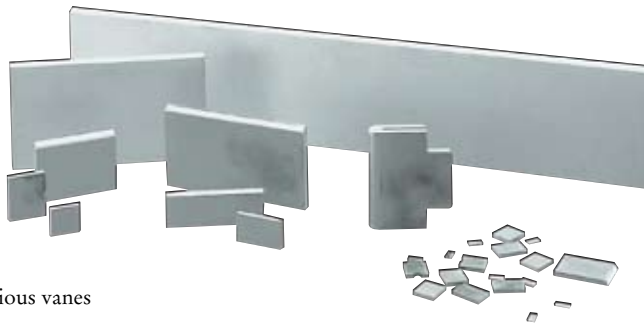


Vanes

Recommended Material Grades

Recommended material grades		
Thermal load	Production	Material
Up to 180 °C	<ul style="list-style-type: none">• Small-batch production and single-item production, up to 385 mm in length	EK 60 Resin-bonded graphite
Up to 220 °C	<ul style="list-style-type: none">• Small-batch production and single-item production, up to 385 mm in length• Large-batch production – tool-dependent, up to 70 mm in length	EK 62 Resin-bonded graphite RIDURID® V 1771 / V 1640 Resin-bonded graphite
Up to 600 °C	<ul style="list-style-type: none">• Small-batch production and single-item production, up to 600 mm in length	V 1626 / V 2098 Salt-impregnated graphite

All materials are suitable for use at up to $v = 20$ m/s and up to $p = 3$ bar.



Various vanes

Suitable counterface materials

- Gray cast iron (GCI)
- Aluminum cast (AC)
- Surface-treated GCI, AC
- Sintered steel
- Carbon / graphite
- DLC-coated materials

Tolerances

- From IT6 / rectangularity < 3'
- Deflection of 0.05 mm over a length of 100 mm



Applications

Vanes, housing parts and rotors made of carbon or graphite are suitable components for dry-running rotary compressors and vacuum pumps. These materials are used for high-volume production of complete vane pumps.



Fields of use

- Printing machines
- Packaging machines
- Fresh-air supply systems
- Silo vehicles
- Central locking pumps
- Medical equipment
- Gas analysis pumps
- Car central pneumatic systems
- Brake servo units
- Pneumatic fixtures
- Compressed air motors
- Pick-and-place equipment



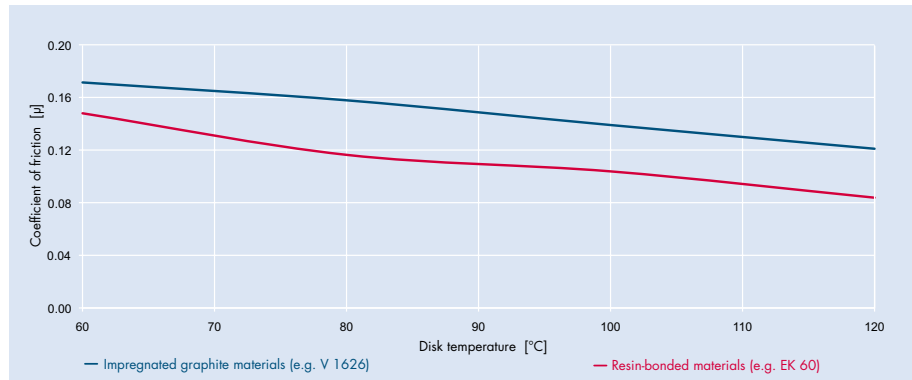
Pick-and-place equipment



Material Properties

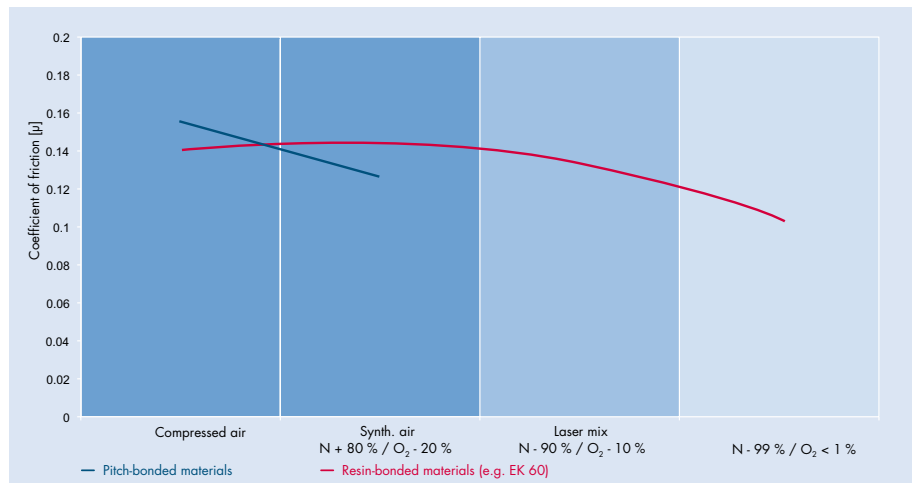
Pin-on-disk friction coefficient

Friction coefficients determined by a pin on disk (EK 60 and V 1626) at 11 m/s and 36 % – 43 % relative air humidity and heated disk



Effect of reactive gases on the friction coefficient

Field of use: resin- and pitch-bonded materials (gas used here: oxygen)

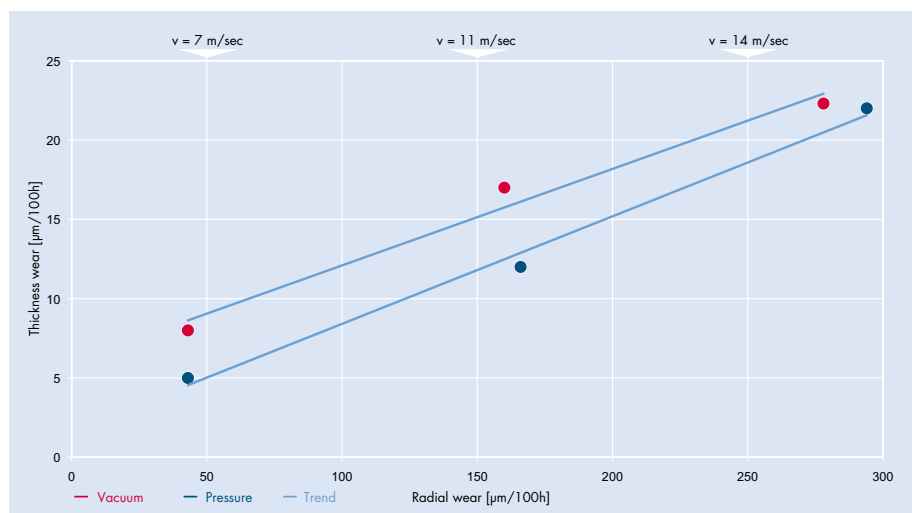


Wear rates of dry-running vane materials when operated under pressure or vacuum

Radial wear and thickness wear of EK 60 during continuous operation over 350 h at $Q = 40 \text{ m}^3/\text{h}$

Pressure:

1800 mbar (abs.) in blue and 200 mbar (abs.) in red





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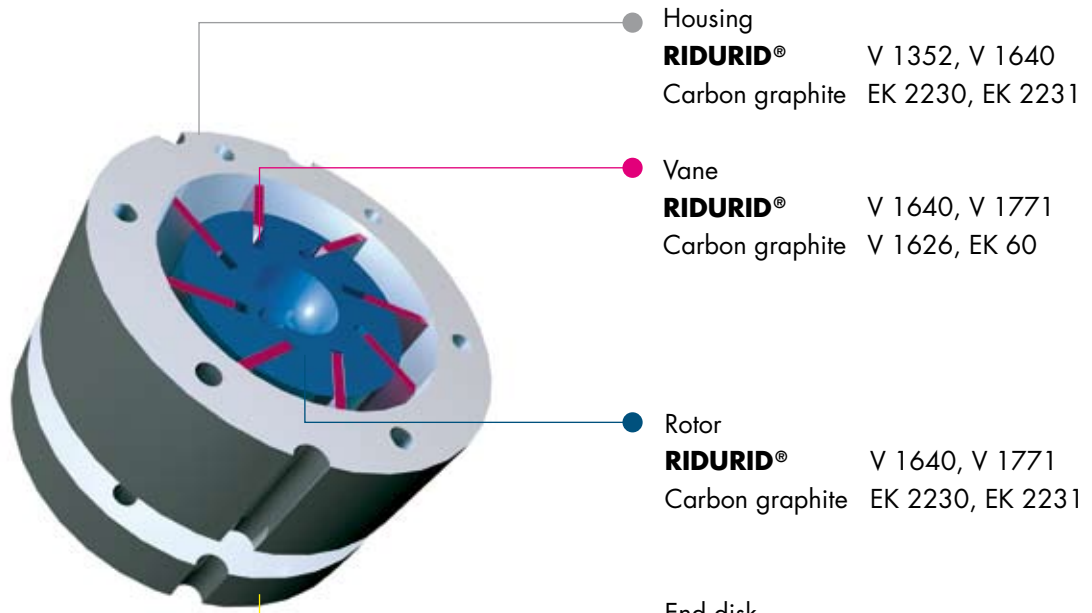
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Pump Components

Recommended Material Grades



● Housing
RIDURID® V 1352, V 1640
Carbon graphite EK 2230, EK 2231

● Vane
RIDURID® V 1640, V 1771
Carbon graphite V 1626, EK 60

● Rotor
RIDURID® V 1640, V 1771
Carbon graphite EK 2230, EK 2231

● End disk
RIDURID® V 1352, V 1640, V 1771
Carbon graphite EK 23, EK 25

Suitable for use at temperatures up to 220 °C.

Pneumatic control unit for car central locking systems, servo locks and various comfort systems. All pump components are manufactured in large batches from materials whose interfaces allow dry running.



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