

# CARBON AND GRAPHITES FOR MECHANICAL APPLICATIONS



*Avoid lubrication  
and reduce your costs!*



**MERSEN**

Compressor and ventilator shaft seal



# WHERE AND WHEN CARBONS AND GRAPHITE SHOULD BE USED

## Applications:

- Guiding and friction: bearings, thrust bearings, rotors, vanes, ...
- Dynamic sealing: rotating shafts, pistons, ...
- Aerospace - Main shaft seals, valve and telescopic seals, Flex tubing seals, APV seals,...

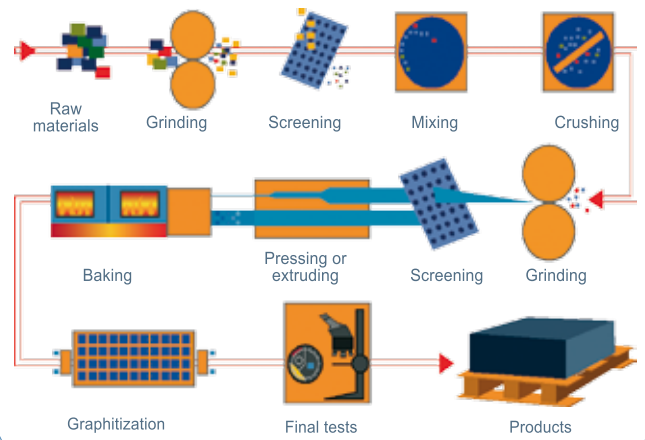


Integrated components for pumps, valves and vanes

## Material solution:

- Thermal shock
- Tribologic
- Lifetime
- Corrosion resistance
- Temperature resistance
- Weight (1.8 to 2.5 density)
- Low thermal expansion

## Graphite Manufacturing Process



self aligning bearing



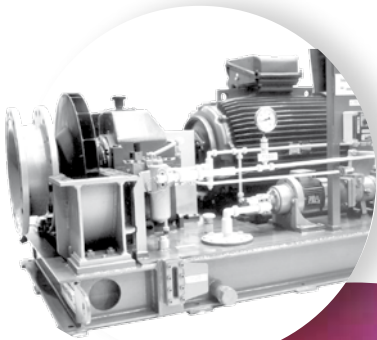
# CARBONS PRODUCTS

are better than other friction reducing materials

## For example

### At high temperatures:

Up to 600- 650°C (in oxidising atmosphere). Temperatures exceeding 100°C to 150°C prohibit the use of standard oils and grease. The thermal stability and self-lubricating features of carbon allow its use as a bearing material in this temperature range. Applications include (but are not limited to) furnaces, dryers, heated mixers, chemical installations, and the manufacture of paper pulp.



Pump bearings and mechanical seals

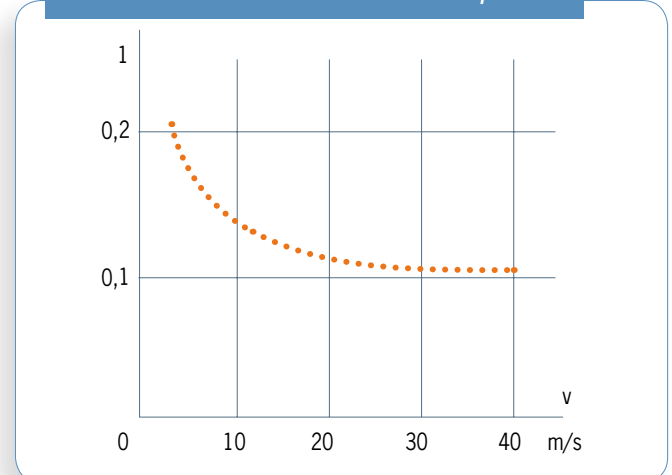
### In corrosive fluids or atmospheres:

Carbons and graphites are chemically inert and corrosion resistant. Wherever ordinary lubricants are not recommended, carbons and graphites perform well, either dry in a corrosive atmosphere or immersed in corrosive liquids.

### To avoid contamination by lubricants:

Carbons and graphites are critical in applications where the presence of oil or grease, even in vapor form, is prohibited. Examples can be found in the food, pharmaceutical and textile industries.

Friction Coefficient / Linear Speed



### When lubrication is difficult or expensive:

Carbons and graphites are efficient dry self-lubricants, which is an attractive property in applications such as control instruments, telephone equipment and meters.

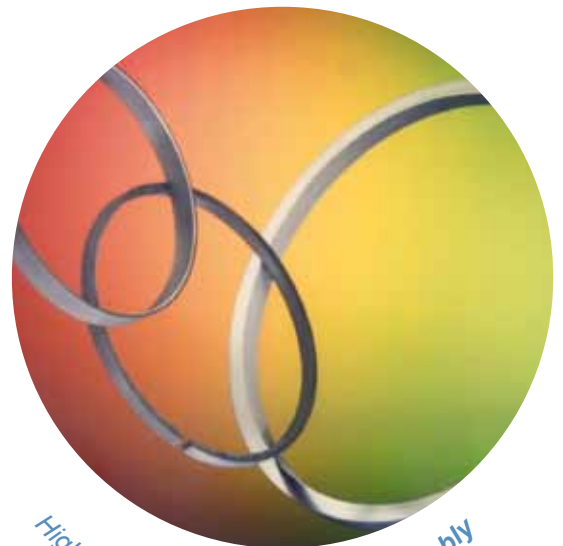
### Where moving parts are inaccessible:

Without carbons and graphites, the maintenance of certain types of equipment becomes virtually impossible due to difficult access to moving parts.

A few examples: marine equipment, pumps, metering pumps and certain equipment in the textile and chemical industries.

### When weight saving is required:

The density of carbon is about 1.8 to 2.5, much lower than metals.



High performance triple seal assembly



**A WORLD EXPERT**  
**in materials and solutions**  
**for high temperature processes**

### A GLOBAL PLAYER

Global expert in materials and solutions for extreme environments as well as in the safety and reliability of electrical equipment Mersen designs innovative solutions to address its clients specific

needs to enable them to optimize their manufacturing process in sectors such as energy, transportation, electronics, chemical, pharmaceutical and process industries.

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