

# Original PFT Rotors Live Longer

## High Stresses and Loads in Rotor / Stator Pump System

PFT construction machines are distinguished by the highest possible operational reliability. Among the factors contributing to this reliability are the long service lives of rotor and stator. As a consequence of increasing stresses and loads, caused by various mortars or plasters, and the demand for high conveying capacities and pressures, PFT continually improves the quality of these "heart" components. Laboratory tests and world-wide practical trials are the basis of these improvements.

### Why Do Some PFT Rotors Live Longer Than Others?

It is generally assumed that the resistance of a rotor to wear, or abrasion, is just a property of its material. This is not the case. The wear resistance depends on the rotor material, the stator material and the pumped material, or, in brief, it depends on the entire wear system. This means that if rotors made of the same material are used with different building materials, different service lives can be expected. Usually, mortars are highly abrasive and make great demands on the robustness of the pumps used.

The hardness law established by Friedrich Mohs (mineralogist, 1811), which says that "a mineral that scratches another mineral will be harder", of course also applies to the abrasive wear of a rotor. To put it simply: If the rotor is harder than the mortar, there will be little wear. But if the mortar is harder than the rotor, there will be much wear. Table 1 shows the Mohs hardness of various minerals. You can see that pure gypsum is a soft mineral, which does not cause very much wear. However, if quartz sand, whose hardness is 4 times higher than that of pure gypsum, is added to gypsum as a filler, there will be an increase in wear. Almost like emery paper, a mortar that contains quartz sand will grind the surface of a rotor that turns in a rubber-lined stator. So it is clear that the "abrasivity" of the plaster used, i.e. its degree of aggressiveness, has the most important influence on the service life of a rotor.

In contrast to the rotors made by certain competitors, who select their materials for medium-

abrasive conveying media, PFT rotors are always designed for maximum stresses and loads. This is why PFT rotors can be



*Maximum performance requires maximum quality. So only PFT spare parts should be used in PFT machines.*

used much longer with highly abrasive media.

### Long Service Lives Thanks to High-Quality Materials

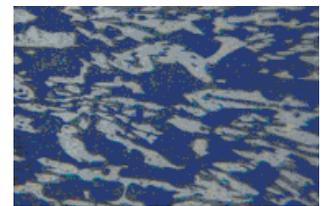
PFT rotors are made of high-chromium-alloy white cast iron with a high content of larger chromium carbides and a matrix containing numerous small chromium carbides, obtained by optimised heat treatment. The high content of chromium carbides is actually the secret of the extremely long service lives of PFT rotors. A special heat treatment gives them their

final, wear-resistant properties and also a high head fracture toughness.

The entire PFT rotor is characterised by the aforementioned material structure – not just the surface. Even after long periods of use, there will still be enough chromium carbides to ensure adequate wear resistance.

### Rotors for PFT Construction Machines Are High-Quality Tools

Throughout the world, PFT rotors have proved their worth as the most economical solution with the highest possible operational reliability. Even though building firms often buy "cheaper" products, which they regard as more economical, PFT will maintain its high standard of wear resistance,



*PFT rotor material at 400-fold magnification.*

because the longer service lives of the original PFT rotors, as compared to those of the "softies", speak for themselves.

Table 1: Mohs' scale of hardness

	Mineral	Mohs hardness
will be scratched by fingernails	Talc	1
	Gypsum	2
will be scratches by steel	Calcite	3
	Fluorite	4
	Apatite	5
will scratch window glass	Orthoclase	6
	Quartz	7
	Topaz	8
	Corundum	9
	Diamond	10