

GRG shredding pumps

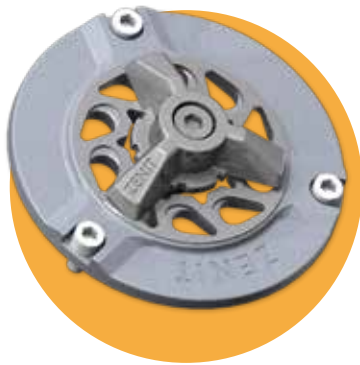
In civil and domestic sewage lifting systems, the nature of the wastewater often with high content of solids and fibres makes the working conditions for the installed submersible pumps particularly critical.

The optimal choice is a **shredder** which combines compact dimensions with high reliability even in the presence of highly loaded wastewater.

THE ZENIT SOLUTION

The next-generation **GRG** models made by Zenit are shredding pumps with motors from 1.1 to 7.5 kW.

The sturdy cast iron construction and the double mechanical seal in the oil chamber make these machines highly reliable and allow them to be used not only in domestic and residential contexts but also in small civil or industrial plants.



The heart of the models **GRG** is an effective, entirely redesigned **cutting device** which consists of a plate with sharp-edged holes and as a shaving, rotating triangular knife, attached to the impeller, both of which are made of **X 102 CrMo 17 KU martensitic steel**.

In this way, the solid material present in the wastewater is finely shredded and can be conveyed without risk of clogging the motor.

Normal configurations with **channel impellers** do not allow an effective disposal of suspended solids and **vortex** impellers, despite being more recommended due to the large free passage, they are often not particularly suitable due to the presence of filamentous material.



WHY CHOOSE A SHREDDER?

Compared to vortex or channel hydraulics, **Zenit GRG** shredder pumps offer high guarantees of unobstructed operation, especially in presence of filaments which could twist around the rotating parts and block the impeller.

They are also recommended for systems in which **low flow** and **high head** is required to overcome considerable differences in level or to obtain a pressure conveyance of the sewage liquids in small diameter pipes and in which it is therefore necessary to treat the wastewater in order to reduce the volume of suspended bodies to facilitate the flow.

Martensitic stainless steel is an iron and chromium alloy with carbon (X102 CrMo 17 KU).

It has very high mechanical properties and is the only stainless steel which can be tempered. The heat treatment aims at increasing its mechanical properties (namely tensile strength, yield strength and hardness).



HOW SHREDDING WORKS

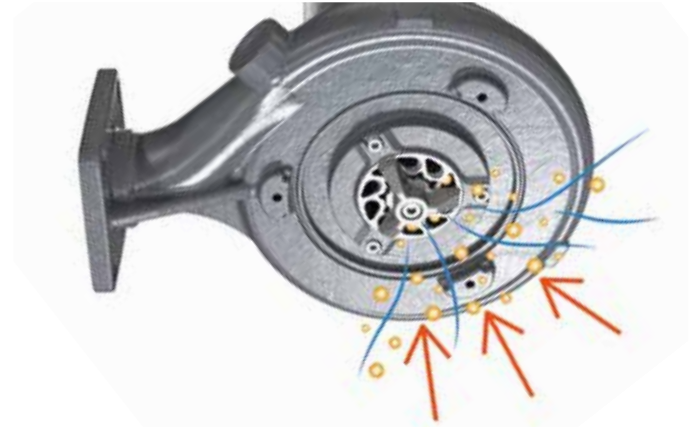
Phase 1: SUCTION

The rotation of the impeller creates a vacuum which draws the liquid towards the suction port of the pump through the holes in the plate of the shredding system.



Phase 2: CUTTING

The knife, attached to the drive shaft and the impeller, rotates at 2900 rpm, skimming the shredder plate in order to cut the shreddable solid and filamentary material present in the liquid with an effective "scissor effect". The system also has special grooves which facilitate the cutting of the filaments even near the drive shaft, where there is more chance that they can twist with the risk of obstruction.



Phase 3: EXTRUSION

Inside the hydraulic body, a special process called ACS (*Anti Clogging System*) allows the ejection of suspended fragments so that they can be conveyed into small diameter pipes with no risk of clogging.



APPLICATIONS

GRG shredding pumps offer excellent performance in the lifting of **civil and domestic sewage** in residential areas, campsites, restaurants, hotels and sports facilities characterised by the presence of fibres and filaments of the shreddable type.

They can also be used for moving **process waters** in textile, paper and canning industries or for wastewater containing processing waste from tanneries, agricultural and food-processing industries.

