

ESC-Drive - The new economic drive concept by VECOPLAN

In the market of industrial shredders, there are various drive concepts available to provide the rotor with the required momentum and to transfer the essential torque for the shredding process. Electronic and hydraulic direct drives as well as the conventional drives in their combination of electric motor, coupling and gearbox are one way, but there are real alternatives, too. As a “pioneer” in the gearless drive technology, VECOPLAN already has proved this in 2005.

The patented HiTorc® drive, developed ten years ago by VECOPLAN, is due to its excellent energy balance and its high efficiency used worldwide for pre-shredding as well as re-shredding and has been writing its own success story for its high operational safety and high throughput at low energy costs.

With the ESC-drive (E= electronic, S=slip, C=control) VECOPLAN has now developed an energy-efficient, cost-effective and economic drive for smaller machines with motor power of 18.5 up 132 kW. The ESC-drive makes gearbox and fluid coupling redundant. The multipolar asynchronous drive motor with powerful frequency converter interacts with a special belt drive with ingenious drive slip control and tramp metal detection with engine break resp. rotor break. Connected with the starting and reversing control proven from the HiTorc®-drive, in this combination the double up to 2.5-fold drive torque can temporarily be achieved.

Especially for shredders, this is an important precondition for high torque and fast start-up and stable operation. In addition, the frequency controlled drive motor can realize a larger rotor speed range. This results in higher throughput and at the same time energy savings due to the frequency converter.

The new drive is – because it is gearless – quiet, low-maintenance and does not require as much space as conventional systems. The shredders' rotor can be quickly accelerated and slowed down depending on the situation. Thus the ESC-drive is dynamically and provides a high starting reliability, even under load and at reversing operations. A further advantage of the new drive concept is the safe tramp metal detection that triggers an immediate shutdown of the machine in the event of a crash. Simultaneously the rotor is slowed down, so that it quickly stops and damages can be prevented as far as possible or at least reduced.

In our Technology Centre the new belt drive has been extensively tested in different variations and combinations (geared belt drive vs. V-belt drive). After the practical tests, the VECOPLAN engineers decided to use the V-belt drive. “In the event of blockade or crash the V-belt temporarily slips. In contrast, the geared belt jumps off the small geared belt disc and prematurely wears. At peak loads the geared belt tends to run off laterally and jumps off, and also the tramp metal detection is not possible on the slip“, argues Wolfgang Lipowski, head of R & D VECOPLAN.



The simple and therefore failsafe innovative solution not only convinces by its energy efficiency, but also helps to lower plant operating costs. VECOPLAN has equipped the complete series of the new V-ECO for plastics processing, paper, file and document destruction with the new belt drive. Other machine types, such as the compact Hard Disc Shredder VDS 800 successfully implemented this drive concept. „With the ESC-concept we have developed an economical alternative to known drive systems in the field of smaller shredders”, says Stefan Kaiser, head of business unit Recycling.

ESC®-drive – All advantages at a glance:

- Energy saving up to 25% compared to electro mechanical direct drive
- Higher throughput
- Better efficiency because fluid coupling and gearbox are obsolete
- Low space requirement
- Quiet
- Dynamic
- Insensitive on tramp material



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