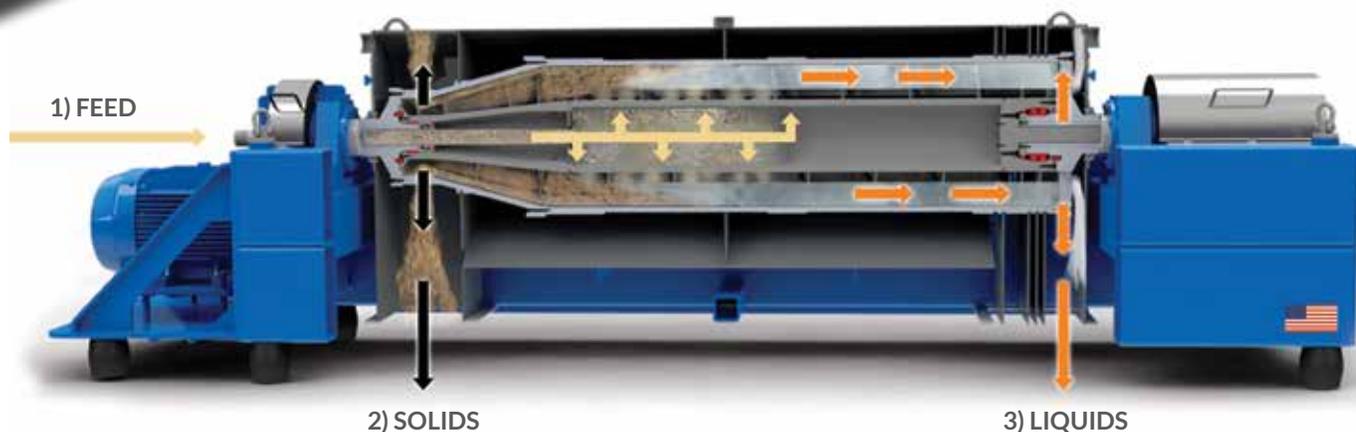




How to Diagnose Decanter Centrifuge Sounds



1) Feed enters the centrifuge and immediately starts spinning in the bowl. 2) The heavy solids are forced to the outermost part of the bowl and are conveyed forward through the machine with the scroll. 3) The lighter layer above solids takes the path of least resistance and flows to the liquid end of the machine.

Diagnose Unusual Sounds and Vibrations

Decanter centrifuges are high speed rotating machines that during normal operation emit sounds and vibrations.

There is always some vibration (normally 2-10mm/second). A loose belt guard, loose belt or other item can cause rattling that amplifies sound and vibration. Be aware of the “normal” sound levels. Over time, operators may become accustomed to an increase in the sound level of the centrifuge.

Monitor the vibration display regularly as it is a good indicator of the machine's performance. Routine service by a Centrisys trained technician and proper vibration analysis are highly recommended. This can predict machine failure before it happens, prevent large repairs and reduce maintenance costs.

Operating any high speed rotating centrifuge with a defect will cause severe damage to the machine or personal injury.

These sounds indicate trouble:

- **Rattle** is a rapid succession of short, sharp, hard sounds.
- **Squeal** is a high pitched noise, typically lasting several seconds in duration. This type of noise will typically increase in volume as the centrifuge speed increases.
- **Loud, low pitch rumble** that comes and goes with differential speed changes.
- **High pitch whine or roaring** that starts at a low speed and gets progressively louder as the machine accelerates and does not change in pitch or intensity

Diagnosis steps for the above sounds are located on the back.



First Step

- Check the vibration levels on the vibration display.
- The reading should not exceed 18mm/sec or 0.7in/sec.

Rattle

- Inspect the entire centrifuge for loose fasteners and screws.
- Check if there is interference between guards and frame.

Squeal

- Check the belts:
 - Tension may need to be adjusted.
 - Make sure belts are not mis-matched. These should be a complete set.
 - Alignment may be necessary.
- Make sure the solids and liquids discharge freely from the centrifuge so there is not a build up in the housing. This causes drag on the bowl and as a result, the belts will squeal.
- Check for struvite buildup on baffles.

Loud, Low Pitch Rumble

The sound cycle noise level changes from quiet to loud, equal to the differential speed cycle.

- Uneven solids distribution will amplify the sound. This means the bowl and scroll are not balanced. Flush and clean in place (CIP).

- If the sound is caused by the internal bearings, grease and purge the internal bearings. Inspect the grease coming out.

Contact Centrisys for additional information.

High Pitch Whine or Roaring

These sounds start when the centrifuge is at a low speed and gets progressively louder as the machine accelerates. Main bearing failure can be sudden if allowed to run for an extended period of time.

- The most common failure causes are to contamination or lack of lubrication.

To differentiate the source of the noise:

- Remove belts.
- Run the main motor by itself to isolate the sound.
- These sounds and symptoms also apply to other electric motors. Check the centrifuge with a stethoscope (available at any auto parts store) to locate the sound.

DO NOT operate the machine if the main bearings are faulty. You need to replace the main bearings to prevent a catastrophic failure. A lockup can destroy the main bearings due to the inertia of the rotor and also damage the shaft and bearing housings which are extremely costly.

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