



# **10 QUESTIONS TO ASK BEFORE SELECTING A CENTRIFUGAL GRAVITY CONCENTRATOR**

Before you purchase a Centrifugal Gravity Concentrator (CGC) there are a number of important questions you should ask to ensure that you are selecting the most efficient and robust piece of equipment for your processing plant.

## **1. WHAT TRULY MAKES ONE CENTRIFUGAL GRAVITY CONCENTRATOR DIFFERENT FROM ANOTHER?**

This is very simple. It comes down to a proven track record, decades of research & development, a full range of equipment, and a very strong and satisfied client reference list. In addition, the ability to listen to your clients, make enhancements to your technology and to deliver a consistent quality product is essential to any successful company.

## **2. WHAT PARTICLE SIZE RANGE DO CENTRIFUGAL GRAVITY CONCENTRATORS (CGC) RECOVER?**

There is no one single technology or piece of equipment that is efficient at recovering particle sizes from below 10 microns to around 5mm. It is a metallurgical fact that a narrower particle size range fed to any piece of gravity equipment will result in a more efficient separation.

When you are trying to recover valuable particles with a broad size range, it requires a variety of CGCs – some with fluidization water and some without.

## **3. DO ALL CGCS USE WATER?**

The majority of CGCs do use additional process water to fluidize the material bed to aid with stratification and the recovery of the valuable particles although with proper engineering fluidization water use can be greatly minimized or even eliminated altogether. When it comes to ultra fine particles (below 30 microns) fluidization water should not be used as it hinders fine particle recovery. Falcon is somewhat unique in that 2 of the 3 major Falcon equipment lines do not use fluidization water.

## **4. HOW ARE FINE PARTICLES TARGETED?**

To dramatically increase the recovery of fine and ultra fine valuable particles, G-force is increased by increasing the rpm of the bowl. In fact, 600Gs can be obtained for the recovery of ultra fine valuable particles as low as 2 microns.



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### **5. DO HIGH G-FORCES INCREASE WEAR ON THE EQUIPMENT?**

The answer is yes, and when equipment is specifically designed with tried and tested wear parts manufactured from well selected materials they ensure an acceptable wear life on all wear parts of less than ONE CENT per tonne treated.

### **6. HOW IS THE CONCENTRATE REMOVED FROM A CGC?**

Concentrate is only rinsed from CGCs that operate as batch type machines; where they process a continuous feed of material for a prescribed period of time and rinse the concentrate out into a separate concentrate collection container or tank. There are also fully continuous CGCs that produce a continuous stream of concentrate and are never offline, other than for routine maintenance.

### **7. SO, OFFLINE TIME IS IMPORTANT?**

Most certainly, the longer the CGC is offline (not processing fresh slurry) the shorter the time for the equipment to be effectively recovering the valuable particles. The use of variable frequency drives (VFD) & dynamic brakes reduces offline time substantially and ensures that the equipment slows down and speeds up with minimal time lost – this is an important part of operating high G-force CGC machines.

### **8. IS THE WEIGHT OF A CGC A FACTOR?**

In order to operate at high G-forces and not affect surrounding structures, well designed & built CGCs have more weight to them to ensure that vibrations are minimized and also to guarantee that the CGC you purchase outlasts the life of the mine.

### **9. DOES THE DEPTH OF THE BOWL INFLUENCE METALLURGICAL RESULTS?**

Yes, because the longer the separation zone (just like a shaking table) the more time the particles have to separate and be effectively collected as concentrate or waste. Shallow bowls are less efficient, especially when you start increasing the G-force.

### **10. IS BOWL SURFACE AREA AN IMPORTANT FACTOR?**

As in question 9 above the depth of the bowl impacts recovery and so does surface area. The greater the surface area (once again, just like a shaking table) the more efficiently your gravity concentrator will operate, maximizing recovery of the valuable particles.