FLOTATION CELLS

It pays to talk to a specialist
TAKRAF, a Tenova company, is an integrated solutions provider to the global mining, bulk material handling, minerals processing and beneficiation industries, offering innovative technological solutions as well as process and commodity knowledge along the industry value chains. With the integration of the well-known DELKOR and Tenova Advanced Technologies (formerly Bateman Advanced Technologies) brand of products into TAKRAF as specialized product lines, our portfolio for the minerals processing and beneficiation sectors has been considerably enhanced.

DELKOR is an industry specialist in solid/liquid separation and mineral processing applications for the mineral, chemical and industrial markets, offering flotation, sedimentation, filtration, screening, and gravity separation systems. DELKOR's services range from test work, process optimization and flowsheet design, to installation, commissioning and aftermarket support.

DELKOR's track record in solid/liquid separation and mineral processing applications stretches back to the seventies with more than 3,000 successful installations worldwide.

DELKOR continues to offer our valued customers the same competitive advantage with flotation technology that has evolved through decades of continuous R&D and experience. Over 40 years in business proves our commitment to our customers, as well as the operational reliability and performance of our equipment. Our automation and analyzer solutions offer operators the perfect tools to enhance flotation performance. In addition, our froth management technology and particle-size-specific flotation lead the field for optimizing recovery in every application. Our teams are ready to serve our customers at any time - in whichever corner of the world you operate.
The development process for flotation cells has trended towards design simplification, not always necessarily yielding optimum conditions for each of the metallurgical requirements, but permitting simpler construction, lower operation and maintenance requirements than earlier more complicated designs.

**DELKOR FLOTATION TECHNOLOGY**

DELKOR's comprehensive range of flotation technology covers:
- DELKOR BQR Flotation Cells
- DELKOR conventional Square Cells
- DELKOR Flash Float Cells

**BENEFITS**

- Low operating and maintenance costs
- Minimized capital expenditure through optimum cell size and minimal footprint
- Minimized operational cost through efficient hydrodynamics, robust designs and advanced materials
- Wide range of available cell sizes, permitting plant design to be compact, economical and efficient, without fear of short-circuiting, even for today's high tonnage operations
- Fewer units leading to substantial savings in construction costs, piping, cables, instrumentation and auxiliary equipment
DELKOR BQR FLOTATION CELL

The DELKOR BQR flotation cell achieves optimum operation through purpose-designed levels of solids suspension, air rate adjustment, easy froth-cone positioning and a stable pulp-froth interface. The cells are used in roughing, scavenging, cleaning and re-cleaning duties, full scale unit applications to process copper, iron, gold, platinum group metals, base metals, phosphates, graphite, coal, slag and effluents. The number of cells required depends on the application. Cells feature on overhung stator, open inlet to the rotor, adjustable air flow rates and froth-cone settings and a launder external to the pulp zone to yield an excellent combination of process, operational and maintenance cost benefits.

OPERATIONAL ADVANTAGES

- Unique mechanism design allows easy startup under load
- Ideal froth conditions are maintained
- Robust instrumentation achieves stable operation
- Quiescent pulp-froth interface
- Low downtime and easy maintenance
- Spares readily available
- Complete mechanism removable for workshop maintenance

PROCESS ADVANTAGES

- High shear forces for better bubble-particle contact
- Good balances between grade and recovery achieved through appropriate rotor and stator selection
- Bubble surface area flux is easily optimized by selecting the correct blower-rotor-stator combination
- Easy process optimization through air supply and froth cone adjustments
- Efficient air distribution
DELKOR SQUARE CELLS

For smaller cell volumes, the square cell is the most economical solution.
- Square cells can be arranged in rows and modulare delivery configurations reduce plant footprint.
- Square cells feature U-shaped bottom. The curved shape of the hull plate does not require stiffeners, reducing fabrication costs.
- The hull plate and tank edge stiffeners allow the cell to act as a very deep, walled beam section. This allows the cells to be self-supporting over long spans, reducing support requirements.
- The curved hull plate has a beneficial process effect as the sloping sides direct solids which settle towards the mechanism.

DELKOR FLASH FLOAT CELLS

In conventional flash flotation we look for grade. Flash flotation offers a unique opportunity to improve performance by removal of the coarse flat floating liberated mineral in the grind circuit. Success in metal recovery of gold, lead, nickel, copper and platinum group of metals are well documented.

Main benefits include:
- Minimal overgrinding
- Improved overall recovery
- Increased mill throughout
- Improved dewatering

FLOTATION CIRCUITS

Analysis of flotation is best approached through consideration of the overall process first and then of its mechanical components (flotation tanks + mechanism). An ideal system will be a circuit in a steady state supplied at a constant rate with ore having constant initial properties, a fixed optimum floatability. The feed would flow through the mechanical machines and circuits selected, designed and adjusted to give an optimum separation. This results in a production of concentrate at a fixed rate and grade and with an associated recovery which determines the overall metallurgical performances of the plant.

SIZES

| 1,5 m³ | 20 m³ | 70 m³ |
| 3 m³  | 30 m³ | 100 m³ |
| 5 m³  | 40 m³ | 130 m³ |
| 10 m³ | 50 m³ | 150 m³ |