Outotec is the world leader in flotation technology and is constantly developing new products based on research and development projects. Outotec has been the market leader of mixing mechanism product development since the 1970’s, which resulted in a number of modifications to the rotor and stator designs. Each new release has pushed the flotation cell’s metallurgical performance through old boundaries.

**OUTOTEC®**

**FLOATFORCE®**

**BENEFITS**

- Increased recovery through improved metallurgical performance
- Lower energy consumption without sacrificing metallurgical performance
- Improved wear life
The heart of the flotation cell is the rotor-stator mixing mechanism, which mixes the slurry, disperses air and generates kinetic turbulent energy. Turbulence is needed in order to accelerate the particles and give them sufficient energy, so that they will attach to the bubbles.

Outotec’s latest mixing mechanism has again increased the performance on all Outotec flotation tank cells where a conventional OK mechanism has been upgraded to FloatForce. FloatForce improves flotation hydrodynamics, mixing at the same aeration rate and maintaining mixing at a higher air dispersion rate.

**FloatForce mixing mechanism benefits**
- Increased bubble area flux $S_b$
- Improved air-hold up volume
- Increased suspension of coarse particles
- Enhanced flotation cell hydrodynamics

*FIGURE 1: FloatForce pumps more slurry compared to OK mechanism at increased aeration rates. Solid weight 40%, rotor diameter 900mm, flotation tank OK38.*
FloatForce mixing mechanism creates superior customer value

Customers worldwide have experienced that FloatForce enhanced hydrodynamics generate superior value to the concentrators’ financial performance; revenues and cost of operation. Better hydrodynamics, together with improved aeration dispersions, result in improved metallurgical performance and recovery. The enhanced performance makes the flotation operation more flexible and gives the operator the opportunity to lower the rotation speed, resulting in a lower operation cost.

OEM quality – improves the availability and total cost of ownership

The flotation process takes place during very harsh conditions, especially for the parts that are in contact with the slurry. It has always been Outotec’s aim to design and manufacture spare parts that last in these abrasive conditions.

On several customer sites Outotec has been able to compare the quality of FloatForce against third party suppliers or OK mechanism. The results show, that the improved design quality of FloatForce outperformed mixing mechanisms sourced from other suppliers. Better quality on wear parts extends the lifetime of the cell resulting in lower cost of operational spare parts and increased equipment availability improving the total cost of ownership.

How much is the financial value of 1% increase in recovery of your current operation?

Did you know, that 10% reduction of rotation speed equals to approximately 20% savings on the electricity bill?
Flotation mechanism modernization
This new technology is not only available in new Outotec flotation technology deliveries, but also for existing installed OK, SkimAir® and TankCell® equipment.

A flotation mixing mechanism upgrade improves the flexibility of a flotation operation and is delivered by Outotec services. The upgrade includes a complete package; the hardware, mechanical engineering, installation supervision and metallurgical know-how.

It is delivered as a project with the aim to improve the operation flexibility and the flotation hydrodynamics which results in improved metallurgical performance. FloatForce mixing mechanism benefits:

How will a new FloatForce mixing mechanism improve my existing flotation operation?

Rotor features
- Wide pumping channels from center to outside
- Separated air dispersion slots
- Directly interchangeable with OK-rotor
- Can be used on all particle sizes

Stator features
- Focus on critical flow areas
- Wear is on small, well defined areas
- Elevated fixing surface of stator wear parts
- Easy and safe maintenance