

# OPERATING PRINCIPLES – LIQUID / LIQUID EXTRACTION EQUIPMENT

## MONO-STAGE CENTRIFUGAL EXTRACTORS:

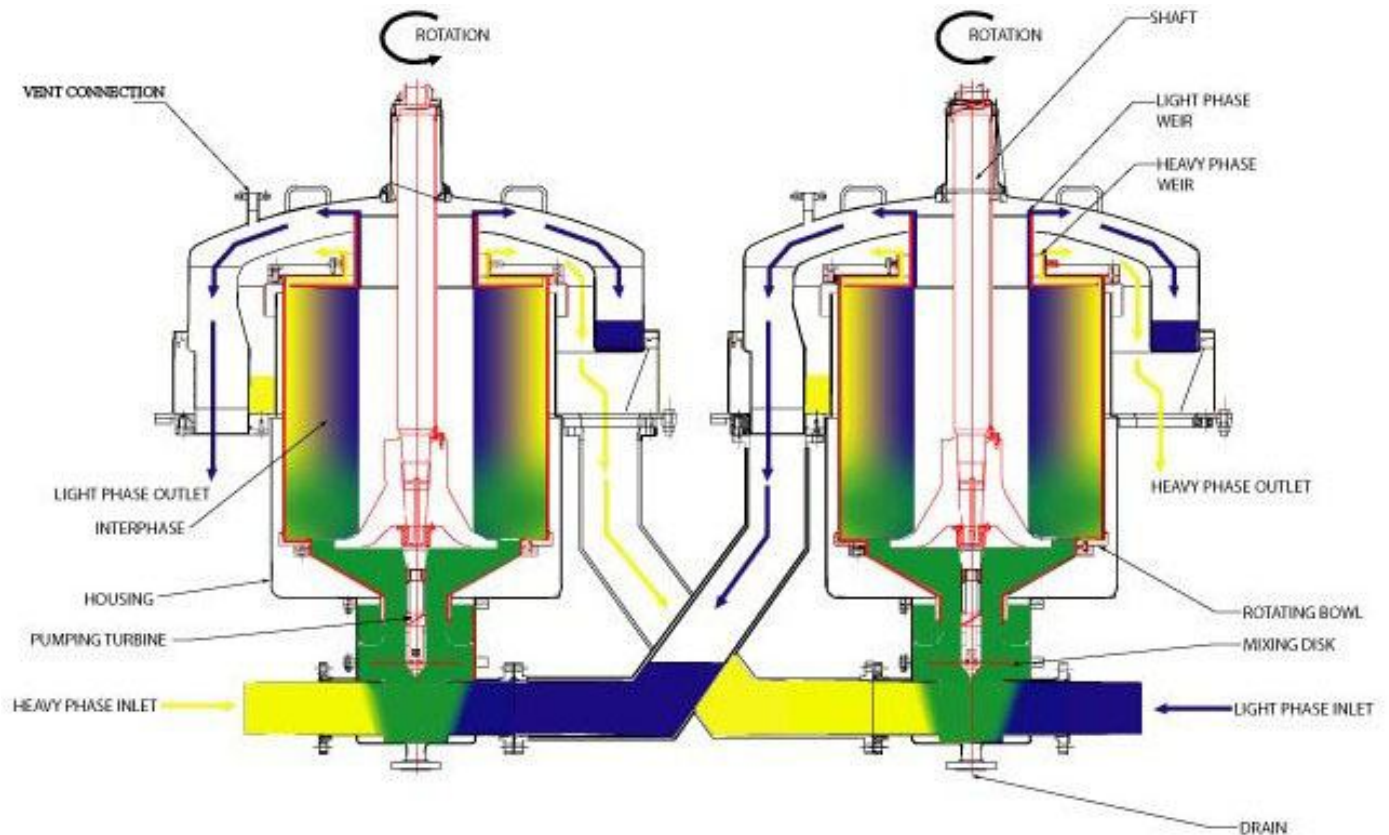


Figure 1: Cross-section of a two-stage countercurrent mono-stage centrifugal extractor.

Rousselet Robatel mono-stage centrifugal extractors are designed for countercurrent extraction by mixing and separating two liquids of different densities. Following mixing in the feed tee, the heavier and light phases are separated using centrifugal force. The separated liquids are discharged into separate receiving chambers.

For a detailed description of the operating principle, please click on the following document: [monostage centrifugal extractor operating principle.pdf](#)

## MULTI-STAGE CENTRIFUGAL EXTRACTORS:

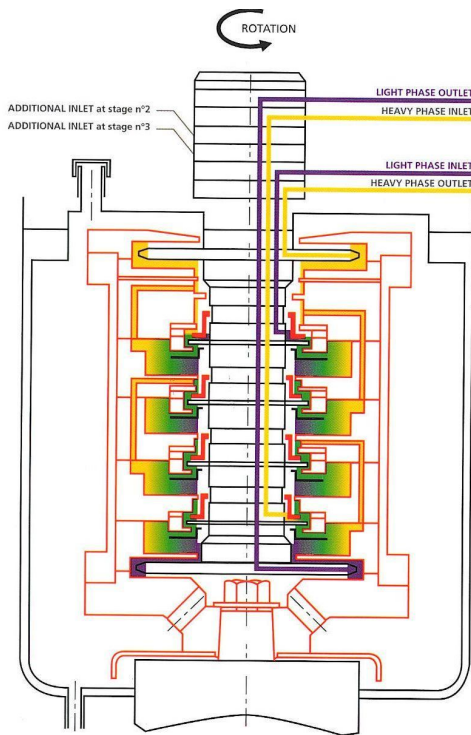


Figure 2: Cross-section of a pilot scale multi-stage centrifugal extractor

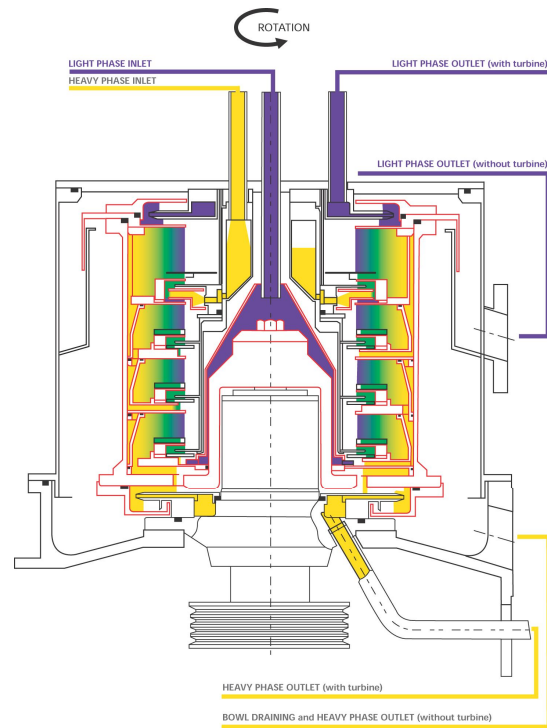


Figure 3: Cross-section of an industrial scale multi-stage centrifugal extractor

Rousselet Robatel multi-stage centrifugal extractors are specifically designed for performing multiple countercurrent extractions in a single machine. Inside each stage, a mixing disc creates a dispersion. This dispersion is pumped into a decantation chamber where the two immiscible liquid phases are separated using centrifugal force.

For a detailed description of the operating principle, please click on the following document: [multistage centrifugal extractor operating principle.pdf](#)

## LABORATORY MIXER-SETTLERS:

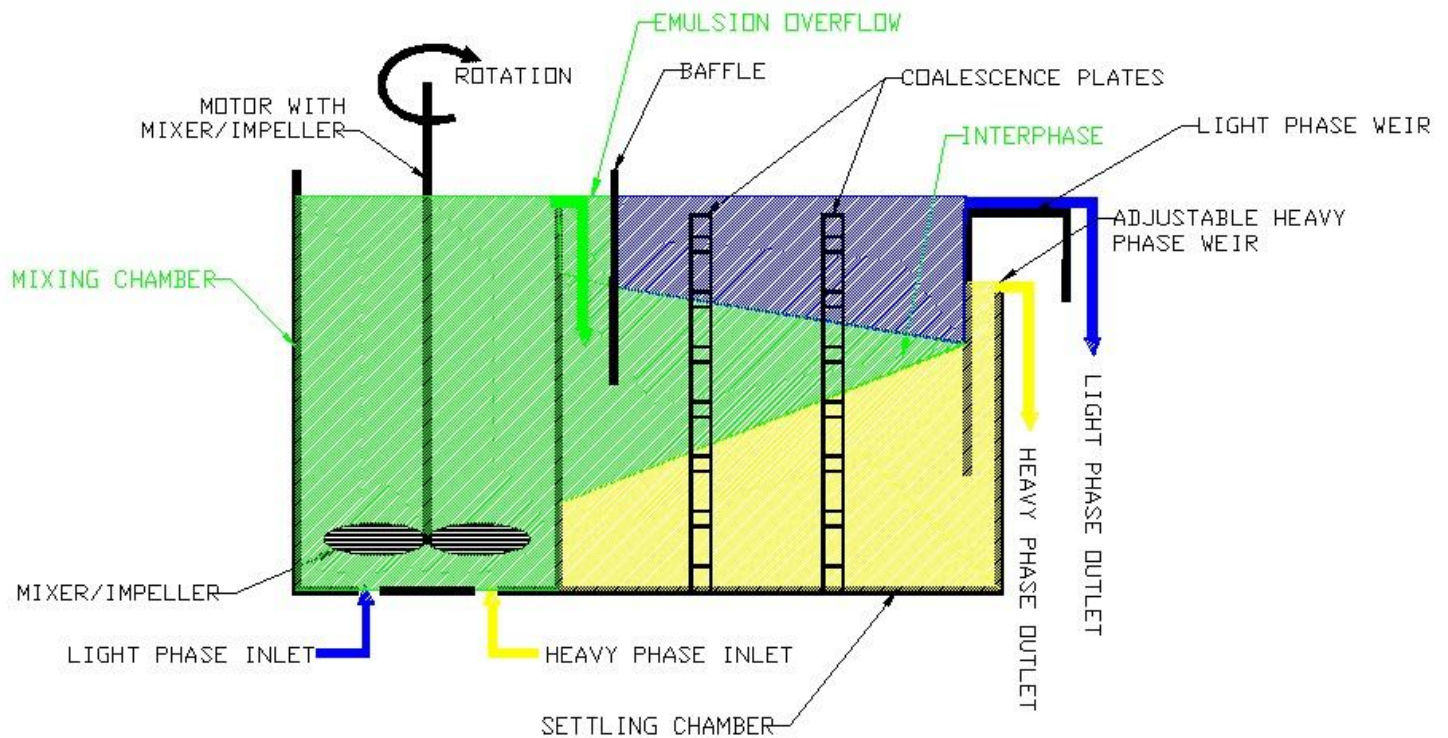


Figure 4: Cross-section of a mixer-settler extraction stage

Rousselet Robatel mixer-settlers are a countercurrent extraction apparatus that transfers the liquid phases using a pump-mix design. The two phases are mixed inside the mixing chamber. This same mixer serves as a pump to transfer the dispersion to the decantation settler. The two liquid phases are separated by gravity settling.

For a detailed description of the operating principle, please click on the following document: [mixer-settler operating principle.pdf](#)