

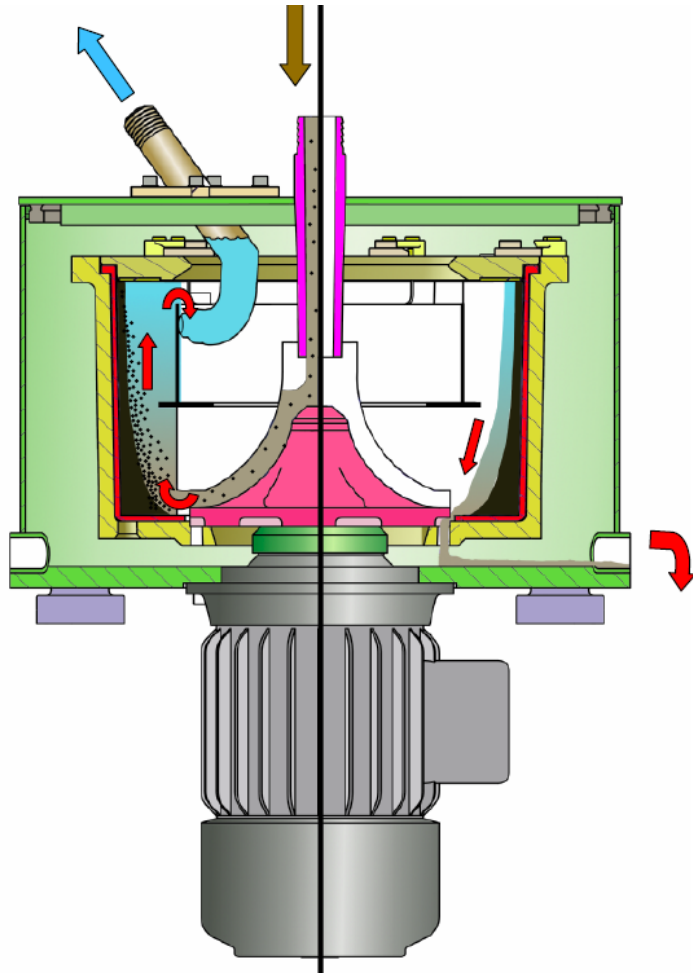


Process water cleaning
with
STA Centrifugal Separators



Glass grit contamination in process water leads to:

- Ú Reduced lifetime of process water
- Ú Sludge deposits in tanks and piping
- Ú Reduced glass surface quality
- Ú Increased wear on pumps and tools
- Ú Down times and labour costs for maintenance and cleaning

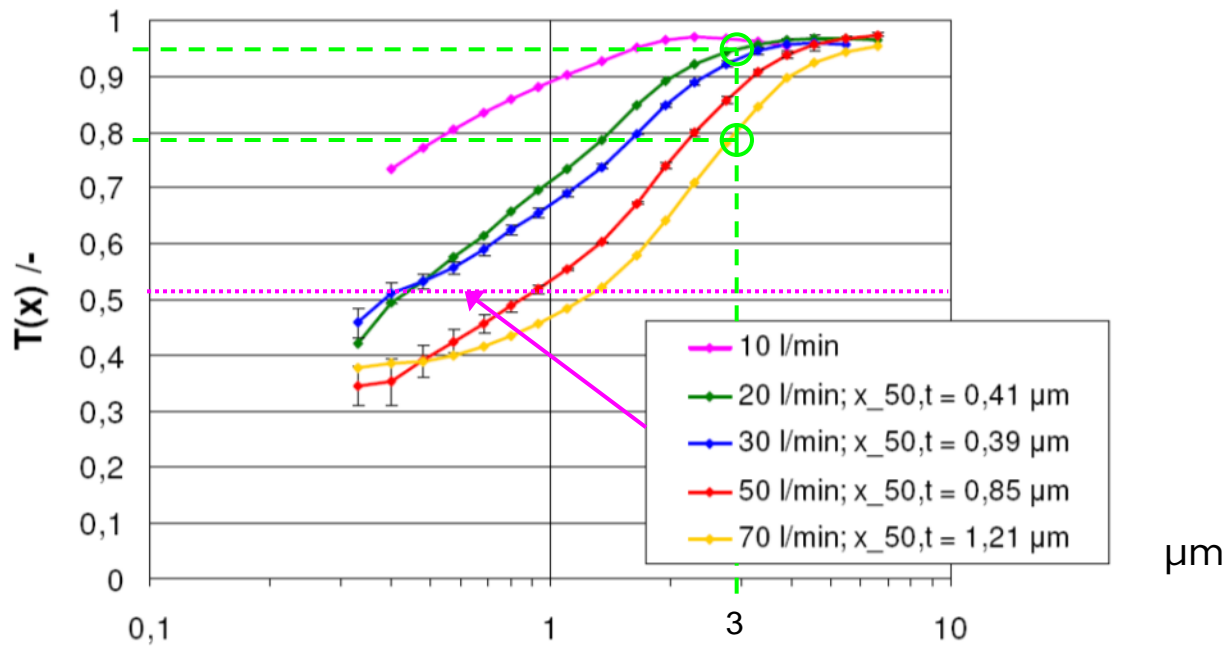


Centrifugal Separator – working principle:

- Ú Suspension enters centrally
- Ú Suspension is accelerated on rotor speed and guided towards the outer diameter via impeller hub
- Ú The solid particles settle on the inner side of the sludge insert
- Ú Purified water overflows via dam and leaves via discharge nozzle at 0.5 bars
- Ú For sludge discharge, the rotor decelerates, feed is stopped
- Ú At standstill the residual water drains
- Ú Sludge insert is ready for emptying

Separation Efficiency

Separation



 at 70 l/min: 80% of all particles $> 3 \mu\text{m}$
 at 20 l/min: 95% of all particles $> 3 \mu\text{m}$

*) : measured with quartz powder SF800 ($x_{50} = 2,06 \mu\text{m}$) in water w/o additives



Separator manual sludge emptying:

- § Open housing cover
- § Loosen rotor cover locking
- § Take out rotor cover
- § Take out filled sludge basket
- § Insert clean sludge basket
- § Remount in reverse order

- U Procedure takes less than 3 minutes



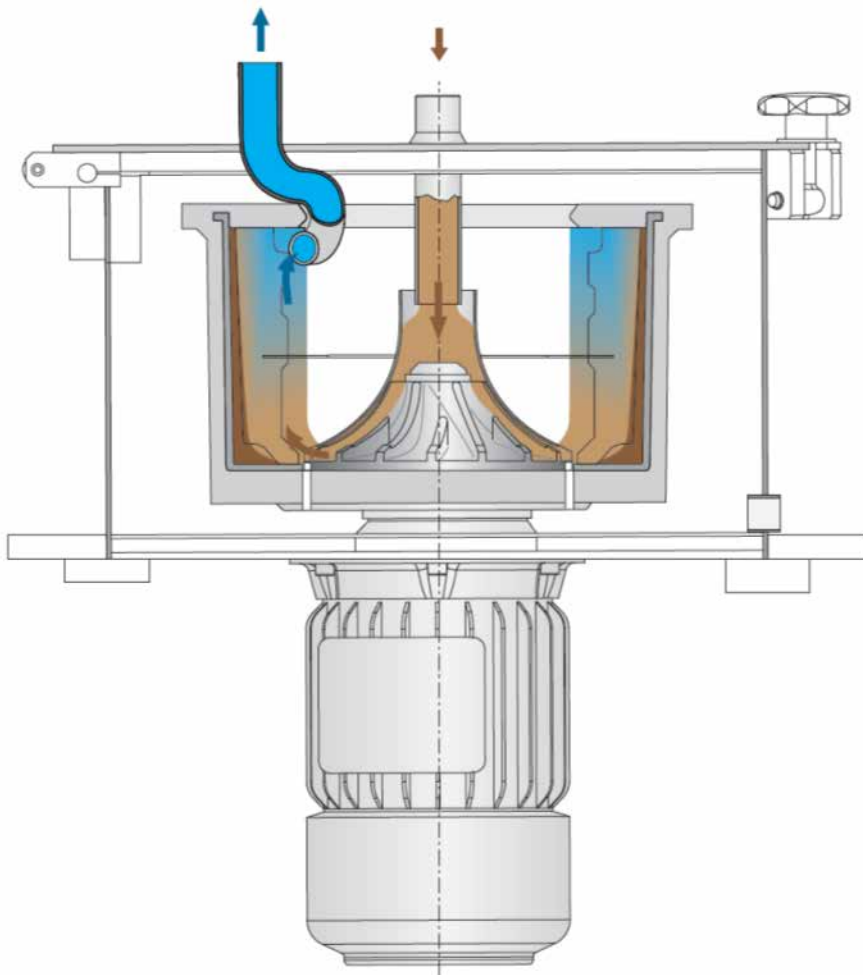
STA Centrifugal Separators Advantages:

- Ú Optimum separation degree without adding chemicals
- Ú Dry and solid sludge -> less disposal weight
- Ú Coolant stays chemically unchanged
- Ú Grinding wheels, pipings and tanks stay free from precipitation
- Ú Space saving system



Centrifugal Separator U-15

- § Manual sludge emptying
- § Drive power: 4 kW
- § Rotor volume: 15 l
- § max. flow rate: 120 l/min
- § G-Force: 1.950 x g
- § Separation: >2 µm
- § Sludge capacity: 12 kg



U-15

§ Fluid acceleration hub

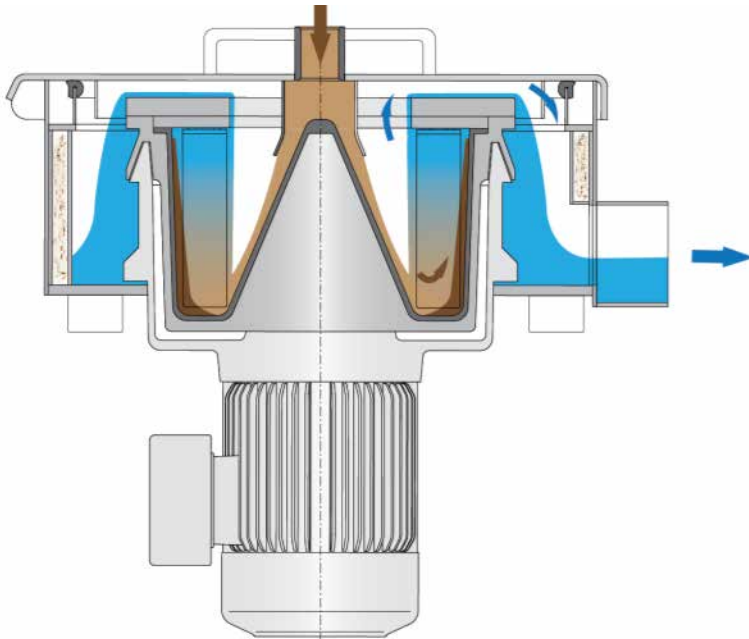
§ Peeler nozzle -> 5m
backflow pressure

§ Residual liquid drain
-> dry sludge



NZ-50

- § Motor power: 1,5 kW
- § Rotor volume: 4,5 l
- § Max. flow rate: 50 l/min
- § Acceleration: 950 x g
- § Separation capacity: >5 μm
- § Sludge capacity: 6 kg



NZ-50

- § Direct drive
- § Free backflow of purified fluid
- § Compact design



NZ-50 Sludge removal procedure

open housing cover

remove driver insert

lift out dilled sludge cage

install spare sludge case

remount driver insert and close cover

The whole procedure takes 2 to 3 min!





S-15 (auto-priming)

- § Motor power: 5,5 kW
- § Rotor volume: 15 l
- § Max flow rate: 170 l/min
- § Acceleration: 1.950 x g
- § Separation capacity: >1 μm
- § Sludge capacity: 12 kg
- § 3-phase separation
(liquid-liquid-solid) optional

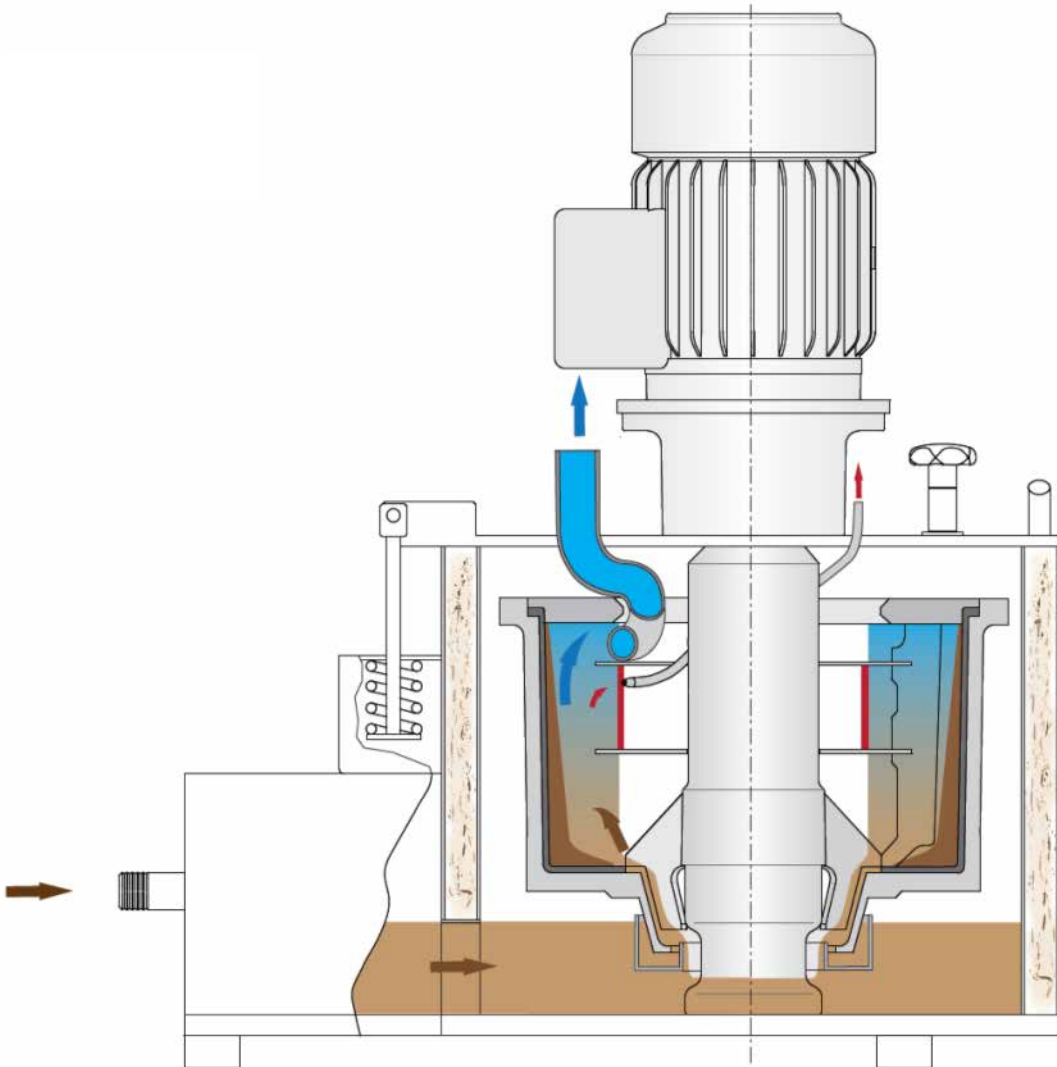
S-15

Auto-priming principle:

- § The separator sucks-in the liquid by means of its special accelerator hub via bottom entry
 - > optimum liquid acceleration, maximum separation performance
- § At standstill residual liquid drains into lower housing part and is sucked-in at re-start
 - > no drain, machine can be placed directly on the ground

3-phase Separation (option):

The secondary light liquid phase, e.g. tramp oil (red), is separated and picked-up via light phase peeler nozzle





AquaCyclone AC-1000

- § 1000 litres Cyclon Tank with precipitation enhancement
- § for direct connection of one or more glass working machines
- § recommended maximum flow rate 400 l/min (24 m³/h)
- § integrated lifting station, the machine's flat tanks are obsolete
- § with machine supply pump, or alternatively easy integration of existing pump on site
- § anti-clogging and anti-wear suction connection for Centrifugal Separator
- § with large maintenance flange
- § minimum space requirement: footprint only 1 m x 1,75m

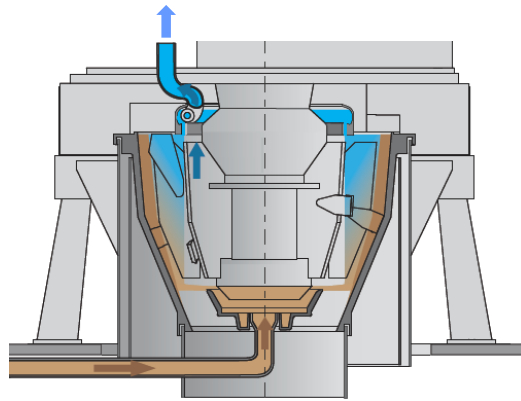


Micro-Filter Clear-Tube

- § automatically back-flushing
- § high flow rate at small filter area
3,5-5 l/min per filter unit
- § Dry sludge when combined with
centrifugal separator
- § works with water with and without
coolant



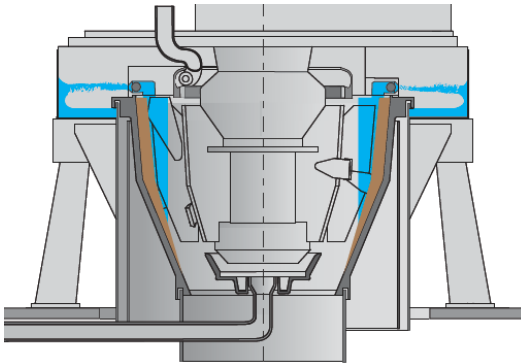
Centrifugal Separators with
automatic sludge discharge



Working principle:

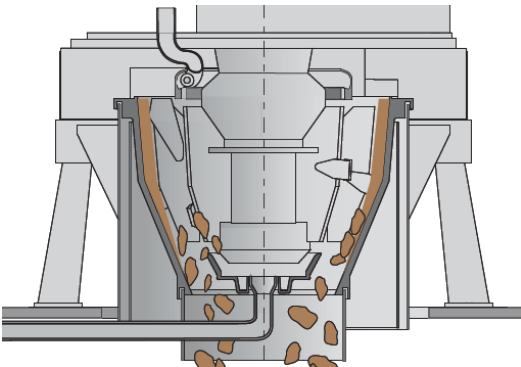
1. Separation

- à Liquid enters, is accelerated and centrifuged towards the outer drum
- à On their way upwards, the particles, being heavier than water, settle on the rotor wall
- à The purified water is picked up by the evacuation nozzle and flows out at 0.5 bars



2. Drying

- à Rotor coasts
- à At 1.000 rpm the centrifugal valves open, and the residual water is ejected
- à Sludge is dried



3. Sludge discharge

- à At standstill the magnetic clutch connects the gear drive with the rotor shaft
- à The hub with its scrapers turns anti-clockwise while the drum is blocked by the freewheel
- à Sludge is scraped-off and falls down into bin



Centrifugal Separator A-25

- § Automatic sludge emptying
- § Drive power: 11 / 15 kW
- § Rotor volume: 40 l
- § max. flow rate: 250 l/min
- § G-Force: 1.950 x g
- § Separation: >2 µm
- § Sludge capacity: 40 kg / h



STA Central systems:

- Conical tanks for particle concentration by cyclone-effect
- Frequency-variator controlled supply of process water
- Continuous separation of dry and solid sludge

Installation examples



Installation examples



Installation examples



Installation examples



Installation examples



Installation examples



Installation examples





STA

Centrifugal Liquid Recycling

Installation examples





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