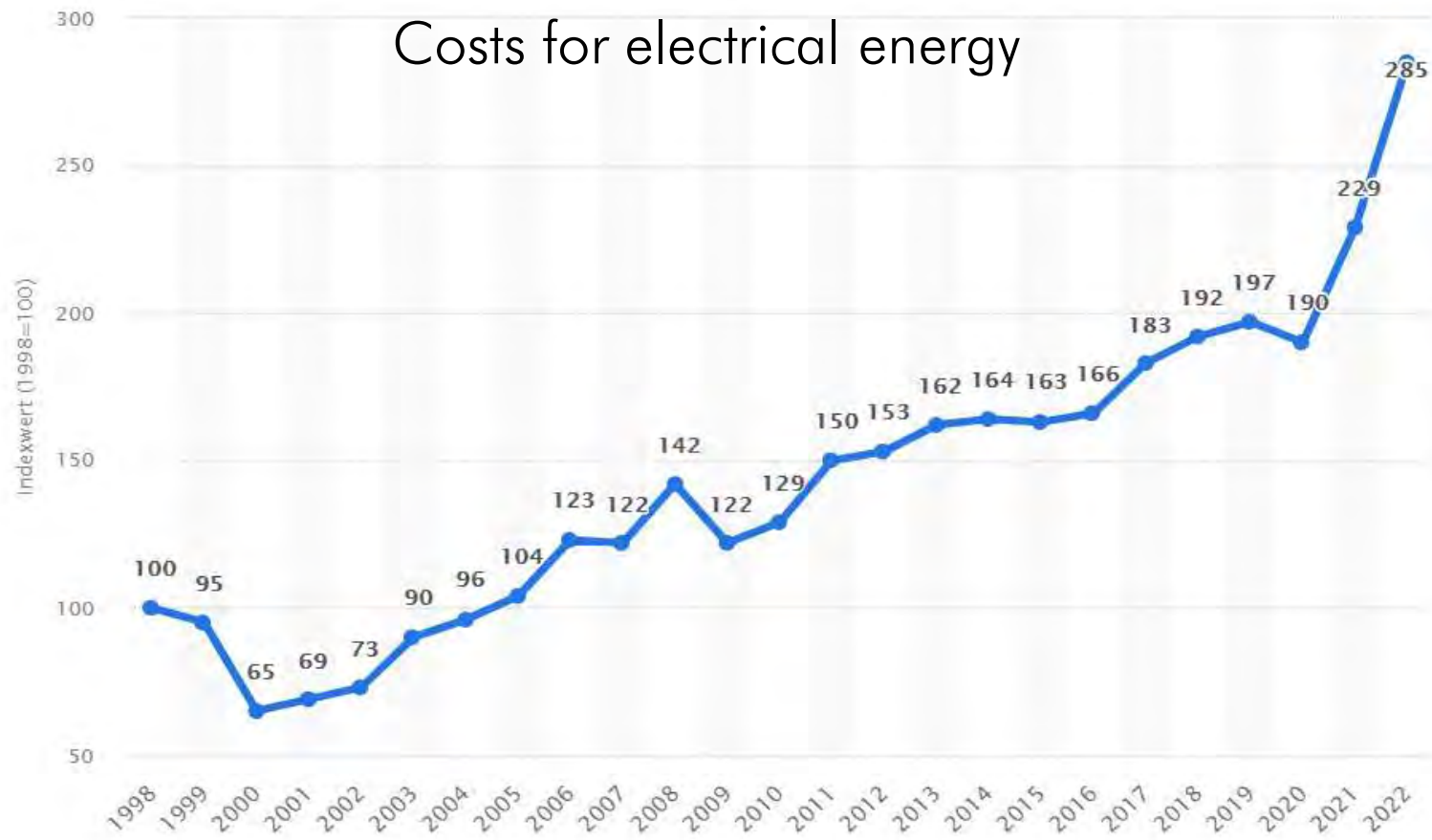




Aluminium chip recycling

How to increase the recovery rate and save energy

Costs for electrical energy



Costs for gas



ALUMINIUMPREIS CHART IN EURO



Price for aluminium at LME

Arbeitskosten je geleistete Stunde (Jahresschätzung): Deutschland, Jahre, Wirtschaftsbereiche



Labour costs per working hour

THE IMPORTANCE AND ESTABLISHMENT OF RECYCLING PROCESSES IS INCREASING WORLDWIDE

42 %

of all household waste in the EU was recycled already in 2014

63 %

of all Germans would recycle cans even without a refund already in 2016

90 %

of the aluminium, steel, glass and paper will be recycled in Germany from 2022 on

95 %

of the energy is saved by recycling aluminium compared to primary with the actual techniques



LANNER® 

EVERY CHIP CAN BECOME A PART OF NEW PRODUCTS AND THE COOLANT CAN ALSO DIRECTLY BE REUSED



Machining



Collecting



Treating



Melting



Casting



Key data of Lanner Germany



- Workshop: 2.750m²
- Employees: 36
- Foundation: 1987
- Organization: Ltd
(100% family-owned)

- Systems: 338
- Centrifuges: 1052
- Chip crushers: 438



The specialist for chip & sludge treatment systems

- The company Lanner Anlagenbau GmbH is the only worldwide full-service operator of chip recycling systems coming of one's own manufacturing. From first planning to start-up – everything from one source!
- Our machines and systems are worldwide used for centuries by customers e.g. in the automotive industry under continuous operation and fully paid within a very short time by increasing the material value and regaining the maximum of the coolant.





Product range

➔ SYSTEMS

Custom made recycling systems
(up to 20 m³/h)



➔ VETAMAT®

Turnkey & compact recycling systems
(up to 2 m³/h)



➔ BRIQUETTING PRESSES

(up to 2 m³/h)



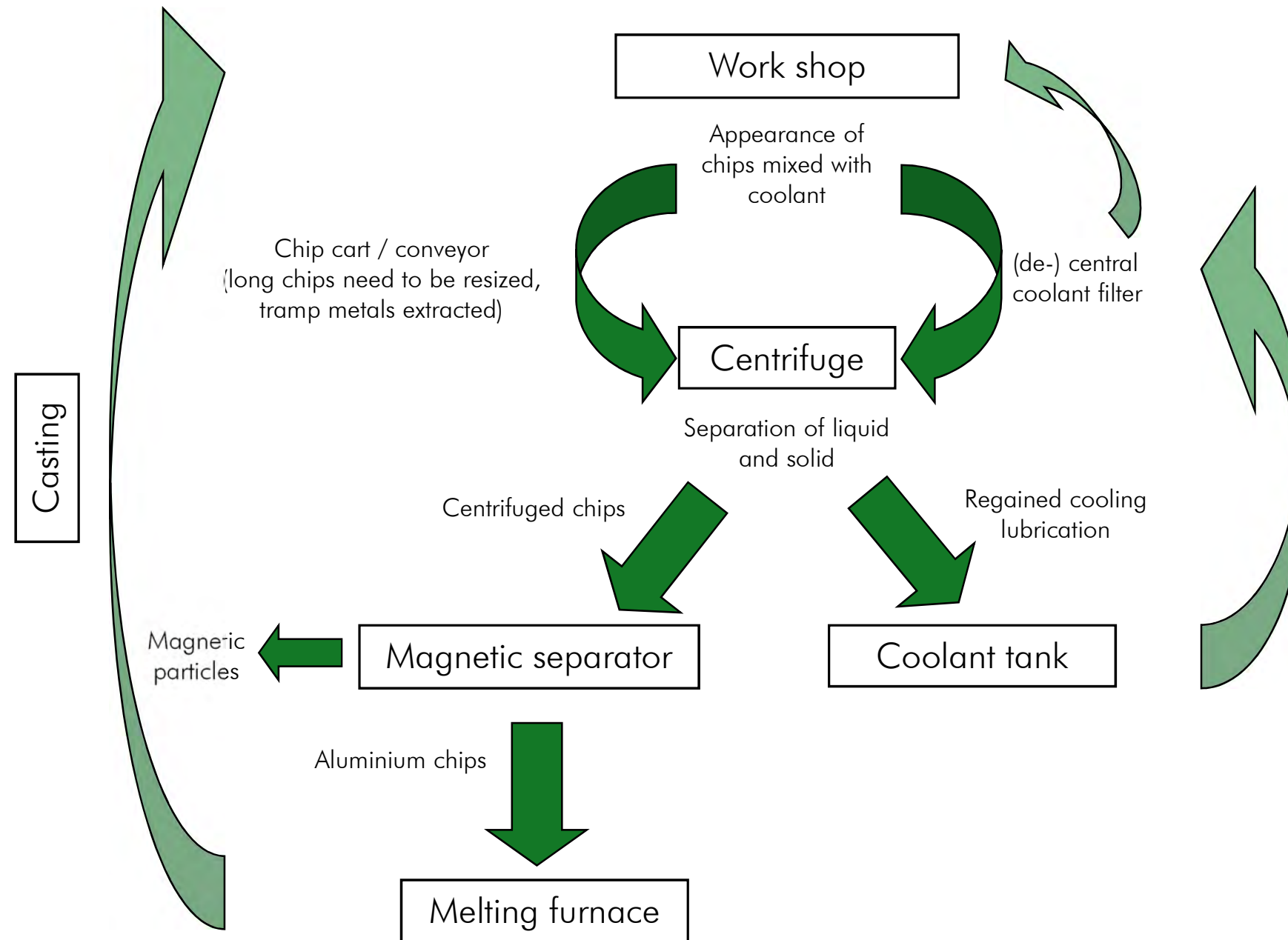


Unique benefits

- ➔ Complete system from one manufacturer for turn-key ready operation
- ➔ Highest recovery rate of coolant with DS lifting bottom centrifuge
- ➔ No thermal drying of centrifuged chips before remelting necessary
- ➔ Lowest energy consumption compared to any other technique
- ➔ Lowest downtime and easiest maintaining of chip crushers and centrifuges



Metal chips & coolant processing





Chip crusher



- Vertical crusher with precise and defined cutting geometry creates consistent shapes
- Crushing tools made of high-quality hardened tool steel with a very long service life
- Big tramp metal ejector with safe discharge. For mistakenly inserted tramp metal, not for separating
- Wear parts easily accessible and re-sharpeable and quickly exchangeable
- Vertical crusher geometry with knife head, to crush even bigger chip packages evenly



Chip crusher



- Mistakenly inserted tramp metals can be ejected automatically
- Contact surfaces can be lined with high wear resistant manganese steel sheets and knifed armored with armor welding
- Easy crushing of stringy or hard metal chips
- No bridge build up, jamming or nests during the crushing operation
- Quiet operation



Centrifuges



➤ DS-Lifting bottom centrifuge



➤ PV-Parabolic centrifuge

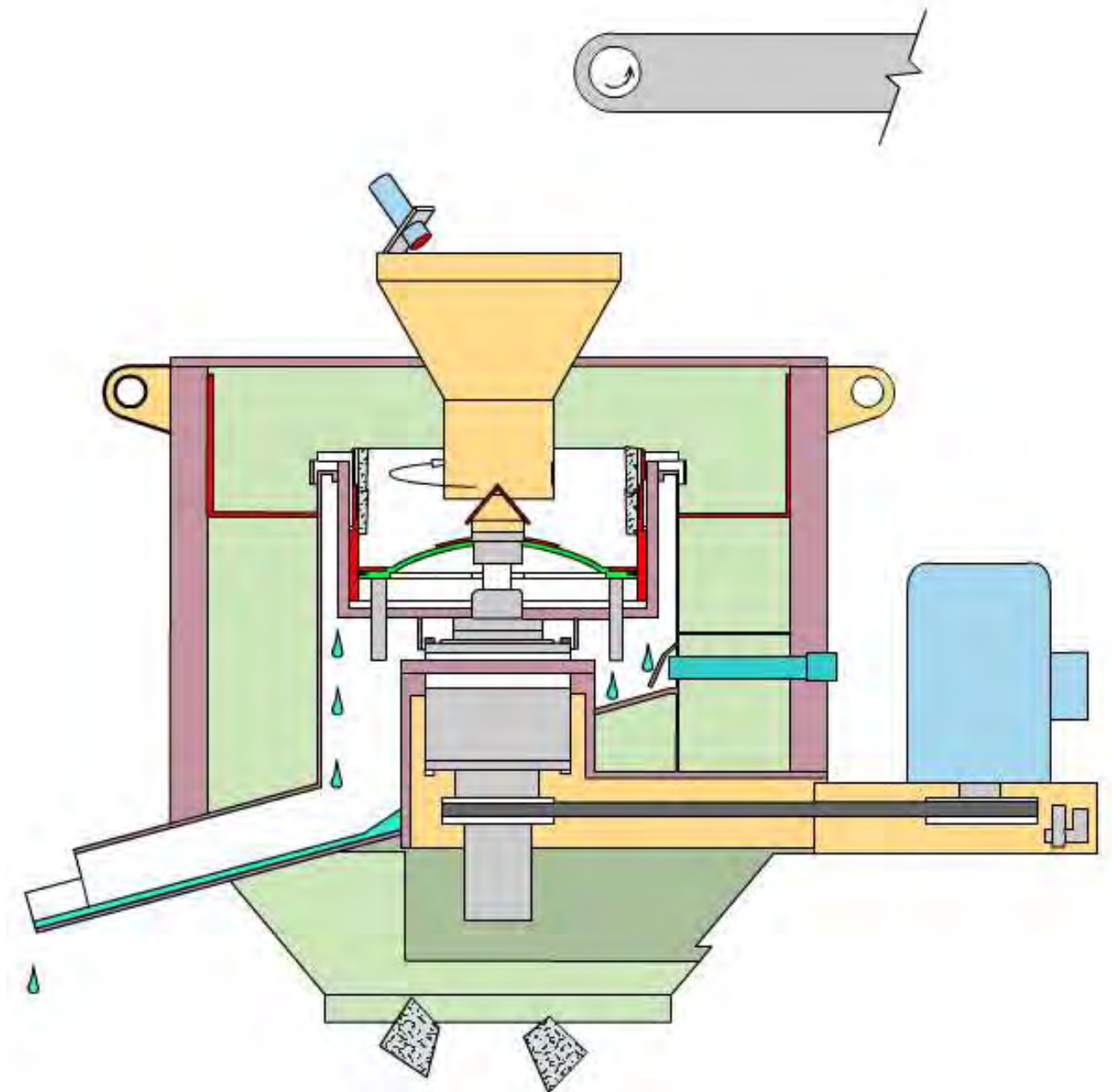


➤ ME-Batch centrifuge



Function of the lifting bottom centrifuge

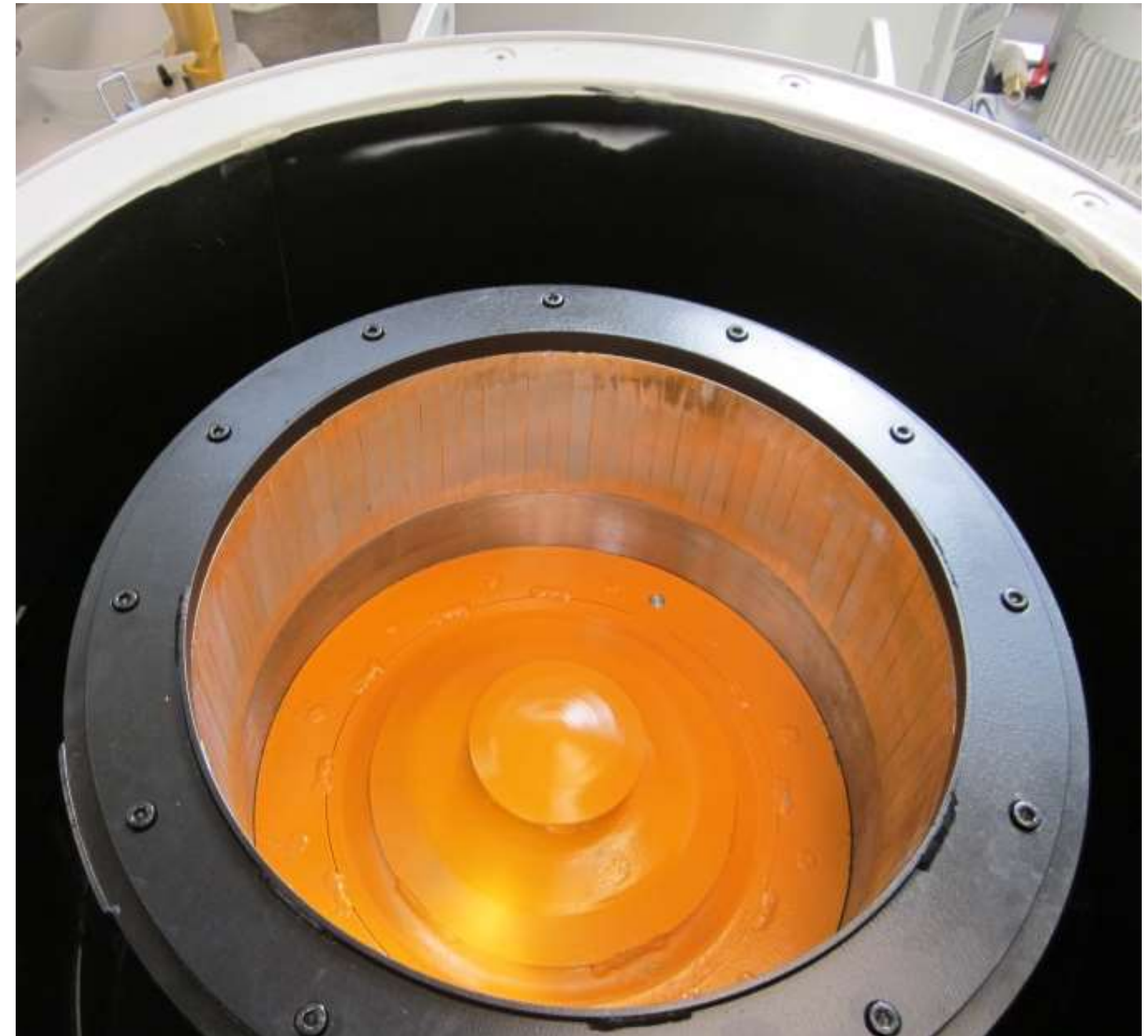
- ◆ Coolant containing chips are fed dosed into the hopper of the centrifuge via conveyor or screener
- ◆ Chips are fall into the drum onto the lifting bottom and are thrown immediate against the armor ring by the centrifugal force.
- ◆ They form up ring-shaped, height and thickness depends of material, shape of chips and infeed volume
- ◆ The lifting bottom pushes the chips onto the slot sieve where the liquid is going through and collected in the inner housing before leaving through the drain into the tank.
- ◆ Chips are remaining on sieve when the lifting bottom returns to lower position.
- ◆ Chips from next cycles are pushing the ones from earlier up step-by-step until reaching the edge of the sieve / drum
- ◆ Dried chips are flying against the armor plates, drop down and leaving the centrifuge





Advantages lifting bottom centrifuge

- Maximum degree of dryness in long lasting continuous operation
- Self cleaning lifting bottom centrifuge. Manual drum cleaning not necessary, not even during processing of sludge and fine chips
- Lifting bottom and sieve in several executions available
- All chip touching surfaces made of wear resistant manganese steel and easy interchangeable
- Double wall filled with concrete, mounted on rubber elements for vibration damping, provides an operation without unbalances
- Centrifuge bottom rinsed with the regained coolant





Furnace feeding

- Fully automatic feeding of infeed pouch of melting furnace
- Automatic start / stop and pivoting when material is taken out of furnace
- Variable speed / feeding concerning furnace demand or material mixture
- Wear resistant execution





Reference 1 – Aluminium wheel producer (Indonesia)



Data:

- ◆ Fully automated systems for extracting emulsion from aluminum chips
- ◆ Throughput 1.000kg/h [3,0m³/h] in 3-shift-operation per system
- ◆ Centrifuging of crushed chips with self cleaning lifting bottom centrifuge DS60 (residual moisture ~1%)
- ◆ Discharge of centrifuged chips on a drag link conveyor system over a magnetic separator into the melting furnace
- ◆ Start-up first system 2012, second 2014, third 2019



Reference 2 – Aluminium wheel producer (Türkiye)



Data:

- ◆ Fully automated systems for crushing, centrifuging of coolant containing aluminium chips
- ◆ Throughput max. 10 m³/h in 3-shift-operation
- ◆ Feeding from centralized coolant filtration system
- ◆ Centrifuging of crushed chips with self cleaning lifting bottom centrifuge DS100 (residual moisture ~1%)
- ◆ Discharge of centrifuged chips on a drag link conveyor system over a magnetic separator into the melting furnace
- ◆ Extension of system for feeding three melting furnaces in 2022 and 2023



Reference 3 – Secondary aluminium remelting company



Data:

- ◆ Fully automated systems for centrifuging of coolant containing aluminium chips
- ◆ Throughput max. 20 m³/h in 3-shift-operation per centrifuge
- ◆ Centrifuging of chips with self cleaning lifting bottom centrifuge DS150 (residual moisture 1-4 %)
- ◆ Discharge of centrifuged chips into boxes for discharge via wheel loader
- ◆ Start-up first centrifuge in 10/2019, second & third unit in 09/2022



Reference 4 – Primary aluminium remelting company

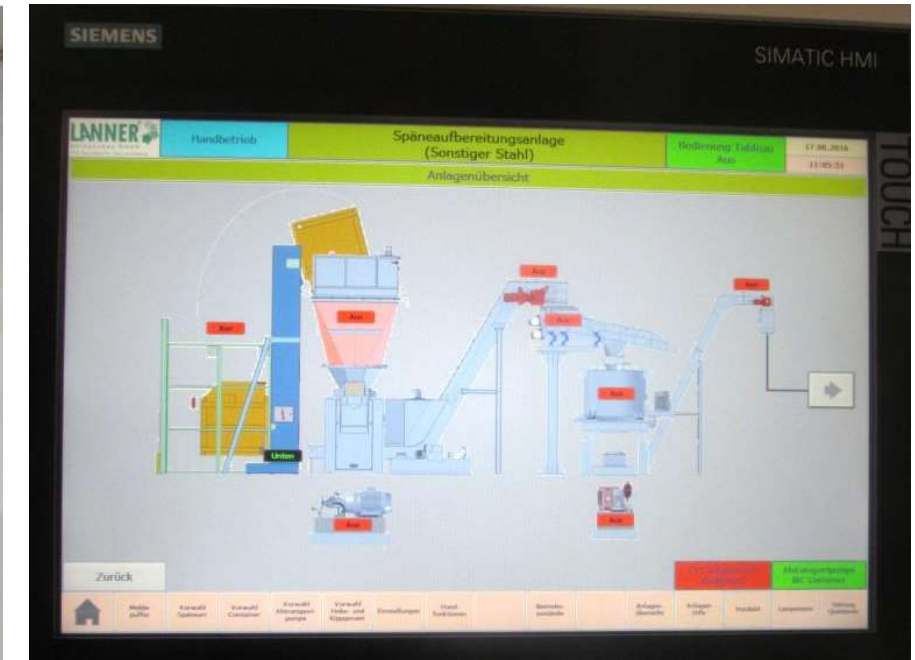


Data:

- ◆ Fully automated system for briquetting dry aluminium chips from sawing operations
- ◆ Two different chip types (short / long)
- ◆ Throughput maximal 200kg/h [$\sim 1,0\text{m}^3/\text{h}$] in 4-shift-operation
- ◆ Filling of conveyor (short chips) and chip crusher (long chips) with fork lift via $1,2\text{m}^3$ chip carts
- ◆ Density of briquettes $> 2.4 \text{ kg}/\text{dm}^3$



Pilot plant at köbller technologie GmbH in Babenhausen



"The equipment is simple, but works perfectly and also user friendly.
My good impression, very fast response from the Lanner's Team.
We are satisfied".

– Erwin Tho, Plant manager



EXCEL
Light Alloy Wheels