

Sales presentation

HAL VIBROCOMPACTOR

Key figures

The background of the slide is a photograph of a large industrial warehouse. In the foreground and middle ground, there are numerous stacks of dark grey, rectangular metal blocks, likely anodes, arranged in neat rows. In the background, yellow overhead cranes are visible, and the warehouse structure with its steel beams and lighting is apparent.

250 000+
tonnes / year

20+
years proven
lifetime

99.8%
availability factor

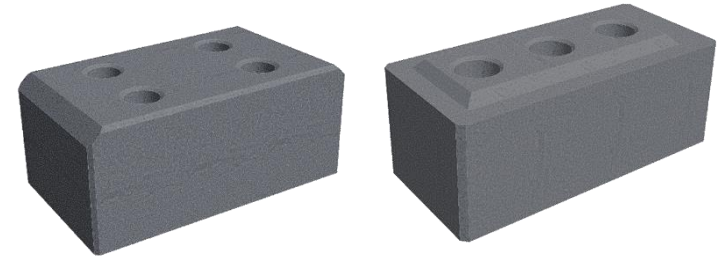
1.65
g/cm³
typical GAD

Up to
36
anodes / hour

- your improvement partner

Reasons to select our solution

- ✓ Consistent anode height and density*
- ✓ More homogeneous conditions in electrolysis – no cracking
- ✓ Scalable system with optionally multiple compactors
- ✓ Tested and verified for use in high current electrolysis cells
- ✓ A proven technology enhanced through several generations
- ✓ Easy exchange of mould for producing different anode types



* Parameters for compacting are continually optimized by the **CarboMaster™** software.

HAL Vibrocompactor



State of the art anode production technology

High Capacity

- Up to 36 anodes/hour
- Short vibration time (22-30 sec)

Compact design

- Practical fit for both new and existing facilities
- Less infrastructure needed for support

Customized production

- Interchangeable mould packages
- Operates with a wide degree of paste qualities

Easy maintenance

- Few moving parts
- Easy access



State of the art anode production technology

Produced anode quality

- Low resistance in electrolysis results in higher current throughput.
- Consistent quality results in low amount of scrap

Low maintenance cost

- Robust machinery ensure less downtime and higher production output.
- Less maintenance need results in less manhours needed and spare part costs.

Automated operation

- Machinery is fully automated in normal operation. Only two operators is needed for operational safety and control.

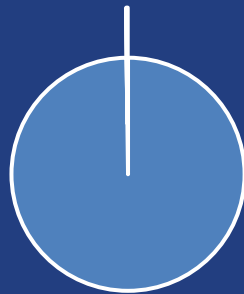
Robust and reliable machinery



- Few moving parts make a more robust machine.
«*Uninstalled equipment will never break!*»
- A maintenance friendly design reduce maintenance and spare parts cost and increase availability.

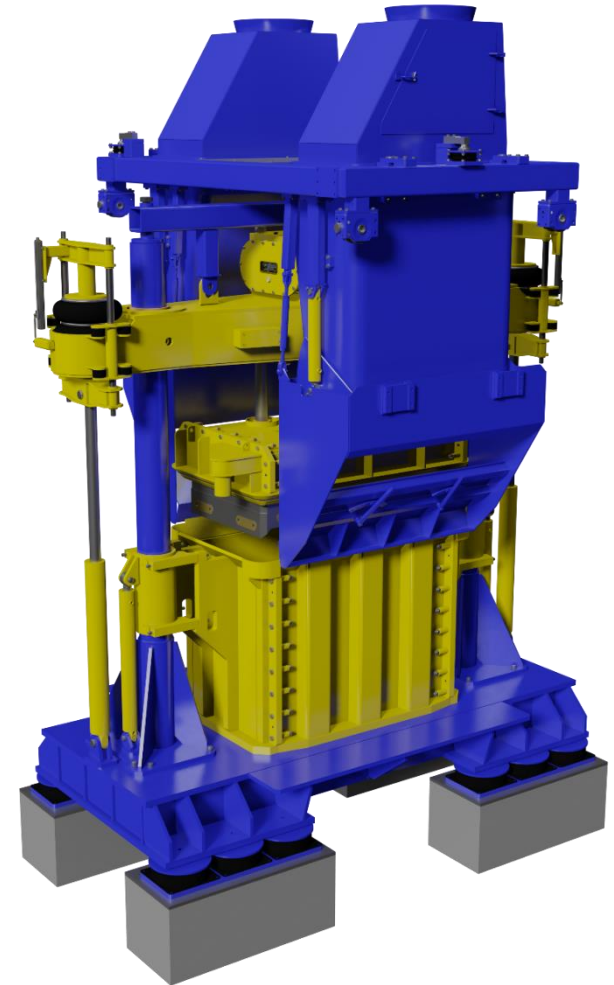
0.2 % Unplanned stops during a four year period

99.8%
uptime

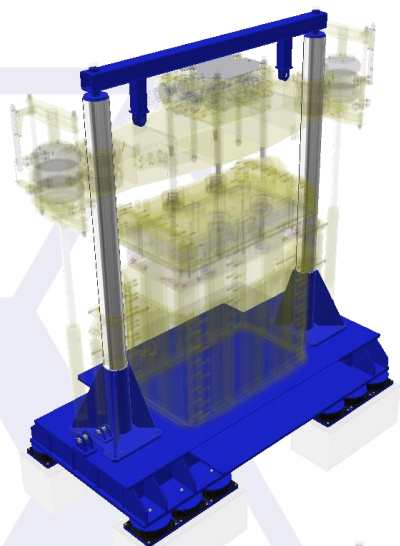


■ Average running time ■ Not planned stop

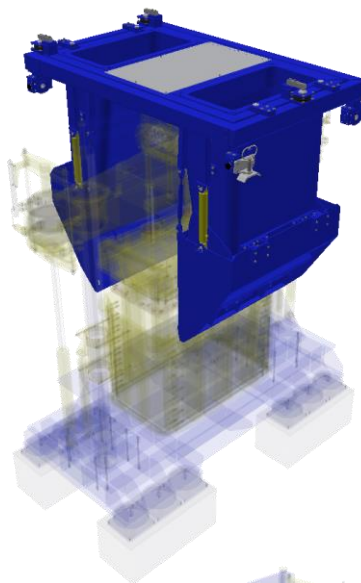
Source: The two compactors at Hydro Aluminium Årdal plant



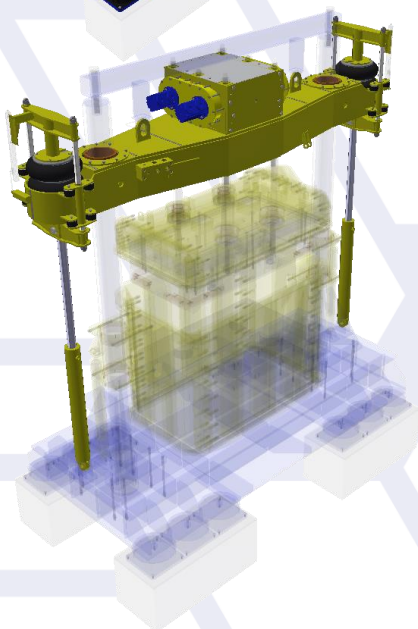
Compactor main components



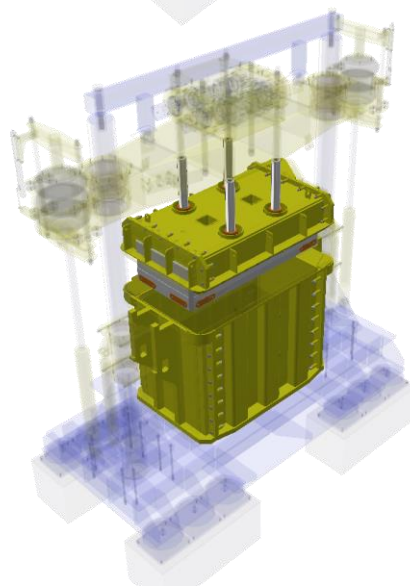
Main compactor body isolated from floor with 12 rubber dampeners



Two paste bins each equipped with load cells and hopper hatches



Main yoke with central vibration unit and air spring yokes at each end



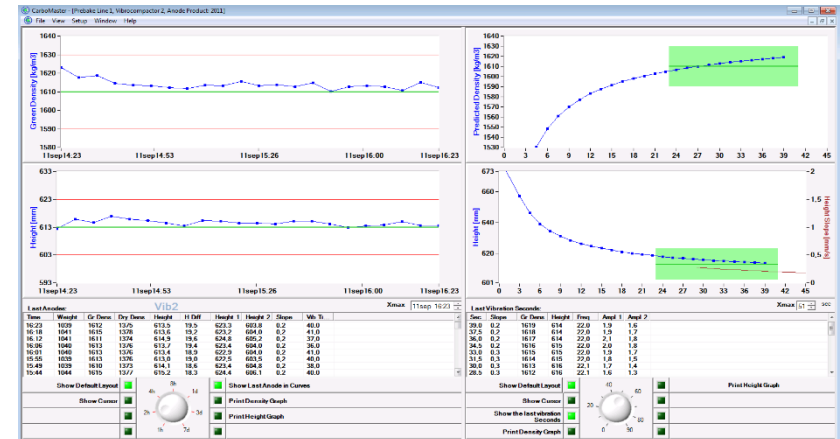
Interchangable mould package consisting of vacuum box, weight and mould

CarboMaster™ software

Benefits



- Sophisticated control system (PLC and CarboMaster™ software working together)
- Prevention of overvibration and subsequent microcracks
- Reduced deviations in anode height, weight and density resulting in:
 - Increased anode lifetime in electrolysis
 - Homogenous conditions in electrolysis
- CarboMaster™ has been developed through decades of operational experience.



Configure CarboMaster

Location & Plant Layout | Controlling | Anode Product Specification | Signals

Select Signal List to view or edit:

DescriptiveName	Item- or Channel Name	Signal Type	Access	Source or Destination	Eng. Unit	MaxEngVal	MinEngVal	ValueOn	ValueOff	Test
StartMeasureFinalWeight	Vb1_StartMeasureFinalWeight	Digital	R	PLC		0.0	0.0	1	0	<input type="button" value="Test"/>
ErrorHeightSensor1	Vb1_ErrorHeightSensor1	Digital	R	PLC		0.0	0.0	1	0	<input type="button" value="Test"/>
ErrorHeightSensor2	Vb1_ErrorHeightSensor2	Digital	R	PLC		0.0	0.0	1	0	<input type="button" value="Test"/>
AnodeProductType	Vb1_AnodeProductType	Digital	R	PLC		0.0	0.0	1	0	<input type="button" value="Test"/>
SignOfLife	Vb1_SignOfLife	Digital	W	PLC		0.0	0.0	1	0	<input type="button" value="Test"/>
VibrationOngoingByCM	Vb1_VibrationOngoingByCM	Digital	W	PLC		0.0	0.0	1	0	<input type="button" value="Test"/>
Displacement1	Vb1_Displacement1	Analog	R	SENSOR	mm	508.0	258.0	0	0	<input type="button" value="Test"/>
Displacement2	Vb1_Displacement2	Analog	R	SENSOR	mm	508.0	258.0	0	0	<input type="button" value="Test"/>

Customers



Existing customers:

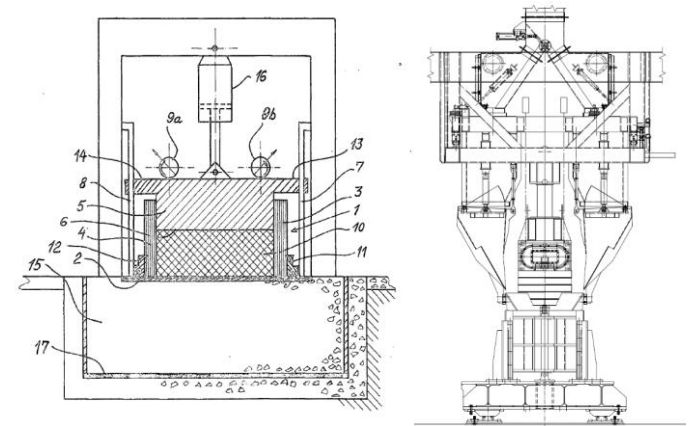
RUSAL – Volgograd plant, Russia
Hydro Aluminium Årdal, Norway
Hydro Aluminium Sunndal, Norway



HYDRO



RUSAL



In development since 1957 (First generation)

Storvik AS has a license agreement with Hydro Aluminium world wide for sales and manufacturing of the HAL vibrocompactor with **CarboMaster™** system

Contact Information



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Storvik is today a leading mechanical and engineering company, supplying multidisciplinary solutions, services, and projects targeted towards the international aluminium-, ferrosilicon-, hydropower- and oil and gas industry.

Through close collaboration with the industry, the company has built a substantial level of knowledge within maintenance, modification and EPC (Engineering, Procurement and Construction), as well as supply of cast products and solutions.