

# HAVER MINING



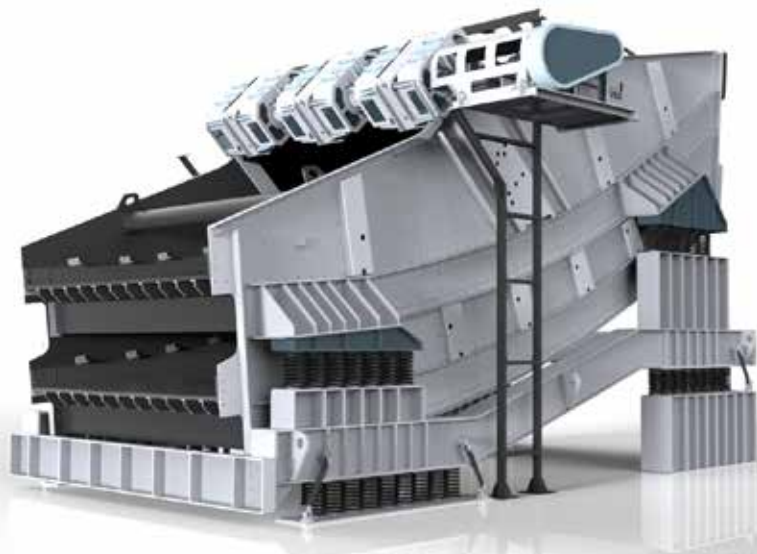
**HAVER & BOECKER**



# GOOD VIBRATIONS FROM HAVER & BOECKER

Innovative solutions for mining processing technologies since 1872.

Today, we are with more than 50 subsidiaries in all five continents, serving a variety of markets with our broad equipment portfolio and support services. Our mining division consists of three hubs in Germany, Brazil and Canada and mining engineering offices in Chile, Mexico, South Africa and Australia. The division specialises in the supply of high quality, high output and highly efficient technical solutions for the screening, washing and pelletising of precious minerals.



Banana screen, double deck,  
exciter driven

## ST. CATHARINES CANADA

HAVER & BOECKER Canada, the former W.S. TYLER plant, is a specialist in W.S. TYLER products including the engineering and supply of polyurethane media.

## MONTE MOR BRAZIL

Since 1974 our Brazilian subsidiary HAVER & BOECKER Latinoamericana has been supplying vibrating screens for classifying high volumes of iron ore, gold and oil sands. The facility also manufactures our newly developed exciter

## MÜNSTER GERMANY

The HAVER NIAGARA GmbH plant has the widest range of customised vibrating screens. Individual solutions for fine screening, dewatering, high pressure washing and pelletising bring technical and economical advantages to our customers.

## PERTH AUSTRALIA

Founded in 2012, HAVER & BOECKER Australia is one of the newest subsidiaries of the HAVER & BOECKER family. Our local engineering and service specialists provide customised, high performance solutions to the Australian mining industry including vibrating screens, high pressure HYDRO-CLEAN® washing systems, pelletising discs, exciter drives, polyurethane media, rebuilds, and more.

### HAVER & TYLER EUROPE

HAVER NIAGARA, Münster  
HAVER ENGINEERING, Meißen

### AUSTRALIA

HAVER & BOECKER Australia, Perth

### NORTH AMERICA

W.S. TYLER, St. Catharines

### SOUTH AMERICA

HAVER & BOECKER ANDINA,  
Santiago de Chile

HAVER & BOECKER MEXICANA, Mexico City

HAVER & BOECKER Latinoamericana,  
Monte Mor, Brazil

HAVER Serviços, Belo Horizonte, Brazil  
HAVER Telas, Belo Horizonte, Brazil

### AFRICA

HAVER SOUTHERN AFRICA, Johannesburg

### HAVER & BOECKER

#### EUROPE

HAVER BY, Lida  
HAVER BELGIUM, Herve-Battice  
HAVER FRANCE, Achères  
HAVER & BOECKER, Oelde  
BEHN + BATES, Münster  
IBAU HAMBURG, Hamburg  
Feige FILLING, Bad Oldesloe  
SOMMER, Düsseldorf  
HAVER CONTINENTAL, Farnborough  
H&B WIRE FABRICATORS, Warrington  
HAVER TRADING, Kobiernyze  
HAVER & BOECKER IBERICA, Barcelona

#### ASIA

HAVER TECHNOLOGIES (Tianjin) Ltd., China  
HAVER IBAU INDIA, Vadodara, India  
HAVER STANDARD INDIA, Mumbai, India  
HAVER & BOECKER, Moscow, Russia  
HAVER MIDDLE EAST, Ras Al Khaimah, UAE

#### NORTH AMERICA

HAVER & BOECKER USA, Conyers, GA, USA  
W.S. TYLER, Mentor, OH, USA  
MAJOR WIRE INDUSTRIES LTD., Candiac  
Quebec, Canada





## QUALITY MADE BY HAVER & BOECKER

Development & Manufacturing Highlights

1872

**FOUNDATION W.S. TYLER**

1930

**FIRST NIAGARA SCREEN MADE IN BRAZIL**

1987

**FIRST PELLETIZING DISC IN OPERATION**

1998

**FIRST HAVER HYDRO CLEAN® INSTALLED**

2004

**PRODUCTION OF FIRST BANANA SCREEN**

2005

**FLYING ASSEMBLY TEAM ACTIVE**

2007

**HEM INSTITUTE FOR SCIENTIFIC RESEARCH**

2009

**SERVICE PULSE PROGRAMME**

2013

**PRODUCTION OF FIRST EXCITER DRIVE**

2016

**NIAFLOW PROCESS OPTIMISATION  
SOFTWARE**

It's not  
just about  
the pieces but  
how they work  
together







We don't  
just use  
machines.  
We build  
them.



# HAVER EXCITING WORLDWIDE

HAVER & BOECKER excitors combine years of engineering experience with quality manufacturing. With two and four bearing screen technology limited in its application for higher capacities, HAVER & BOECKER expanded its production programme to include exciter-driven wide body screens.

The screens are designed using analytical calculation and finite element analysis with MSCFEA software based on the AGMA, ISO, DIN and BS standards. Extended in-house stress tests guarantee equipment durability.





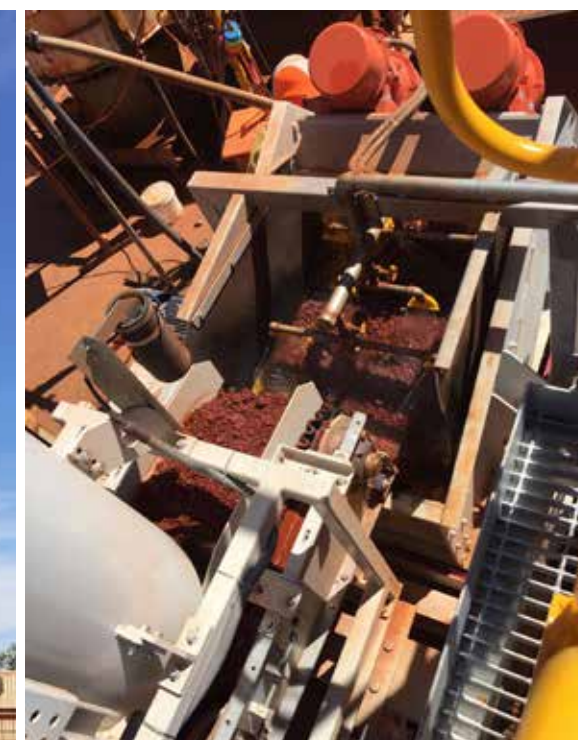


# YOUR LOCAL EXPERT FOR CUSTOMISED SOLUTIONS

Our Australian technical specialists deliver customised HAVER & BOECKER mineral processing equipment to ensure optimum operational efficiency.



HYDRO CLEAN® pilot plant in Australia,  
infield tests managed by  
HAVER & BOECKER Australia.



The 1:1 scale pilot plant is semi mobile  
and allows in-mine test runs.

If your business involves the processing of raw material (including gold, platinum, iron ore, copper, lead, zinc, nickel, aluminium, graphite or bauxite), industrial minerals or aggregates, you have found the right partner in HAVER & BOECKER Australia. We know that no two products are alike and are committed to finding the right solution to meet your needs.

We understand that companies in the mining sector need to increase efficiency, continuously improve operational safety and reduce environmental impact. Our products

are designed to optimize performance and throughput, while minimizing operating expenses and downtime.

With an increased focus on the environment and the efficient use of natural resources, we focus on developing solutions that help you reach your sustainability goals without compromising on performance or productivity.

Our products have been proven at mine sites across the globe. Find out why so many companies trust HAVER & BOECKER for their processing needs.



# WE ARE EXCITED BY MINERALS!

Every mineral deposit is different. To process these precious minerals effectively and minimise environmental impact, HAVER & BOECKER developed multiple customised solutions focusing on delivering quality, productivity and efficiency. In 1930 we developed our first four bearing screen in Europe and in doing so, increased both the throughput capacity and the quality of the cut-sizes. We then expanded our range of screen designs and now offer one of the largest screening machine programmes worldwide. Washing can be a solution to increase mine output but it can be water and energy intensive.



Our HYDRO-CLEAN® system is more efficient than conventional scrubber technology and can increase the concentration of the finished product. HAVER & BOECKER Australia has built a 1:1 scale HYDRO CLEAN® semi-mobile test plant available to run onsite washing tests. To increase the efficiency and intelligence of pelletising technologies, HAVER & BOECKER developed its line of SCARABAEUS® pelletiser discs. These high-end discs can be automated and are prepared for digitisation.



Washing screen



Infeed to HYDRO-CLEAN®

Horizontal screen, three exciter drives, polyurethane screen deck



Our technology is tailored to suit your requirements.



SCARABAEUS® pelletiser, 6 meters diameter, automatically adaptable.



1

A HAVER & BOECKER technician visits your site to conduct a full evaluation of your operation, including screen media and vibrating screens.

2

Our technicians use our signature wireless Pulse Vibration Analysis system to measure the relevant datas for high quality operations.

3

An easy-to-understand report with our recommendations provides the information to improve your vibration screen's performance and efficiency and reduce maintenance costs.



## PULSE VIBRATION ANALYSIS IN THREE STEPS

HAVER & BOECKER works with Industrie 4.0. Our Pulse Vibration Analysis system combines mechanical action with digital control to improve screening performance.

At HAVER & BOECKER Australia, we understand that your vibrating screens are more than just boxes that shake; they are your tools to generate sales. Whether you are in the mining or aggregate screening industry, our team of HAVER & BOECKER-certified technicians can help you to optimise your operations. Our exclusive Pulse Vibration Analysis technology will evaluate the performance of your vibrating screen, providing you with the information to increase screen efficiency and reduce maintenance costs, regardless of what brand of vibrating screen you have.

### Features & Benefits

The Pulse Vibration Analysis will help you to understand the interaction between feed material, screen media and the throughput of your operation. A detailed report will contain suggested improvements and OEM recommendations to maximize your screening efficiency and minimize unscheduled downtime. Onsite training will give your maintenance department the skills and confidence necessary to maintain a productive operation.

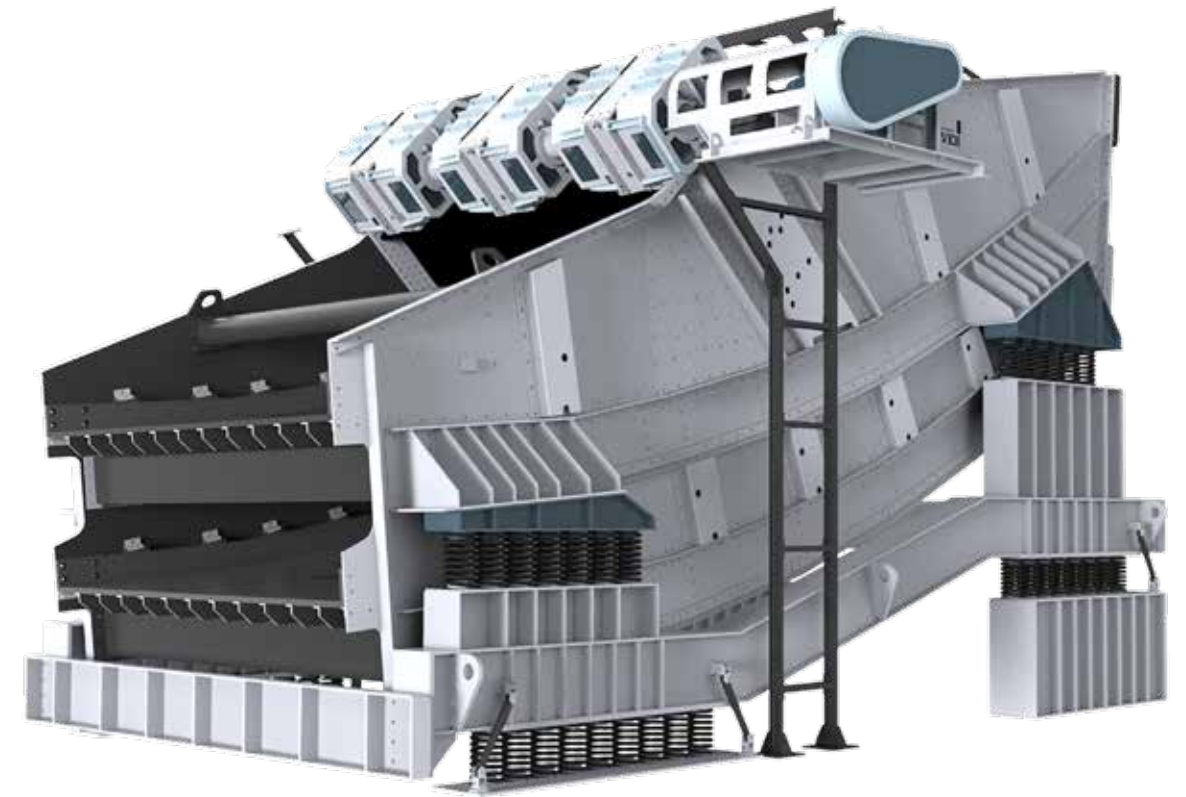


From  
analysis to  
efficient work  
in only  
three steps



## SERVICE PULSE PROGRAMME

The Pulse Partnership Programme is a great way to keep machines in check. Lease our eight sensors and monitor the information yourself for basic results. Or, with a monthly subscription, HAVER & BOECKER Australia can analyse the information and provide a formal report on the machine's health.

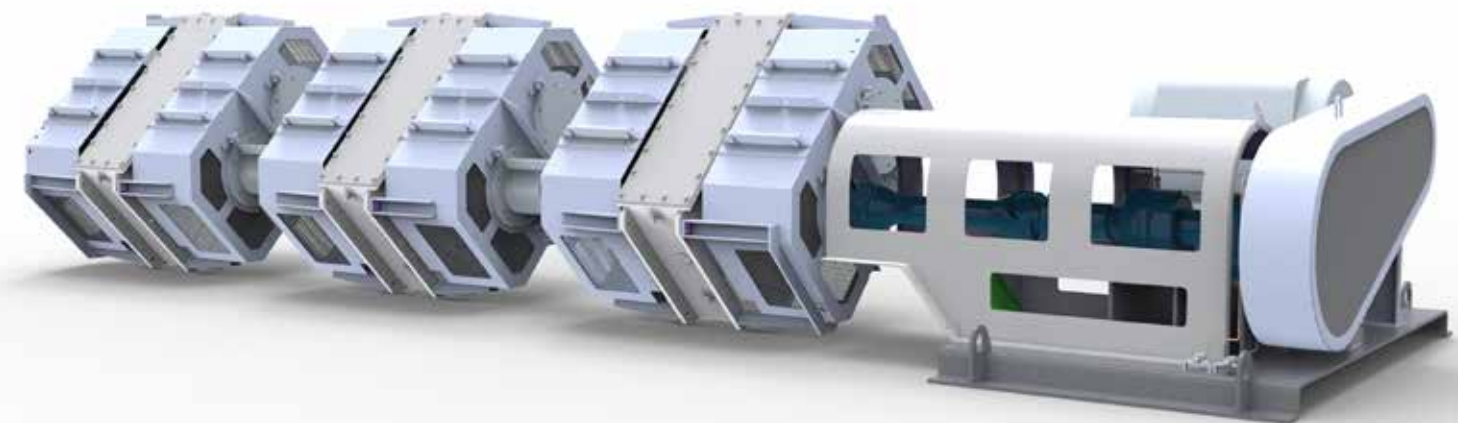


Our approved service engineers are located together with hundreds of stock items in our facility in Malaga, WA. With experience working on with all screening brands used at Australian sites, our team understands your equipment.

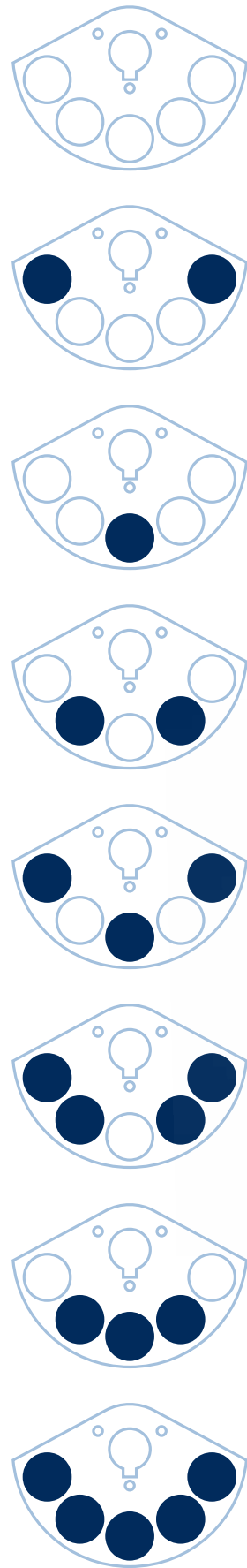
**Our value offering:**

- Book the vibrating screen experts to get you operating at your best.

- Use our screen expertise regardless of the vibrating screen brand in your plant.
- Utilise one of our service technicians with your team as a consultation tool.
- Let us supply you our original spare parts.
- Allow us to train your operators at job side or in training seminars.





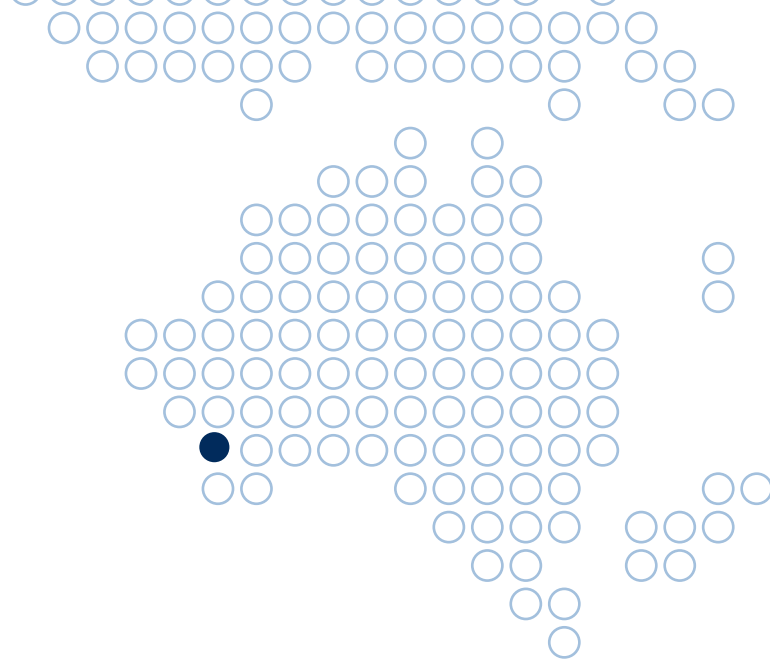


Flexible counterweight arrangement



## HAYER EXCITER DRIVES

HAYER exciter drives are produced in Brazil and China to HAYER & BOECKER specifications and our German quality standards. Our exciter-drive system components, the bridge and the exciters, are designed based on significant global industry experience and engineered in cooperation with German and Brazilian technical institutes, and our own engineering experts.



The modular design enables us to convert former shaft driven screens into exciter driven ones.



Exciters - before and after refurbishment by HAYER specialists.







# HAVER HYDRO-CLEAN®

HAVER HYDRO-CLEAN 350® assembled at HAVER & BOECKER Australia and prepared for tests at your job side.

Technical Data						
Machine Size	Application	Number of washing rotors	Max. throughput rate [t/hr] **	Max. water-pressure [bar] **	Max. connected electrical load [kW]	Max. water consumption [m³/t raw material]
HYDRO-CLEAN®350	Pilot scale and exploration	1	20	150	40	0.5
HYDRO-CLEAN®700		1	80	150	75	0.2
HYDRO-CLEAN®1000	Processing in general	1	160	150	120	0.2
HYDRO-CLEAN®2000		2	320	150	230	0.2

HYDRO-CLEAN®350 is available locally as a test or hire machine for trial test washing.

## ADVANTAGES OF HAVER HYDRO-CLEAN®

THE HYDRO CLEAN® converts contaminated products into processable or sellable products through high pressure washing. Even contaminated areas of a mine can add value to your production process using this newly developed environmentally friendly technology.

### Advantages

- INCREASE PRODUCTION**  
 The HYDRO CLEAN® effectively increases the sellable product fraction.
- ECONOMICAL USE OF WATER**  
 The HYDRO-CLEAN® technology works with only 10 to 20 percent of the water consumption of a washing drum. This brings significant savings for slurry lakes.
- HIGH THROUGHPUT RATE**  
 With a throughput rate of up to 320 tonnes per hour per unit the HYDRO-CLEAN® system has a very effective output.
- MODULAR DESIGN**  
 The modular engineering concept results in easy and fast installation, maintenance-friendly operations and easy relocation within the mine.
- GENTLE HANDLING**  
 The water pressure can be adapted individually to the hardness and needs of precious metals and stones.
- ELECTRICAL DRIVE**  
 The electrical energy can be supplied by the public system as well as by a diesel driven generator.



Before: sticky raw material with adhering fine content and agglomerates



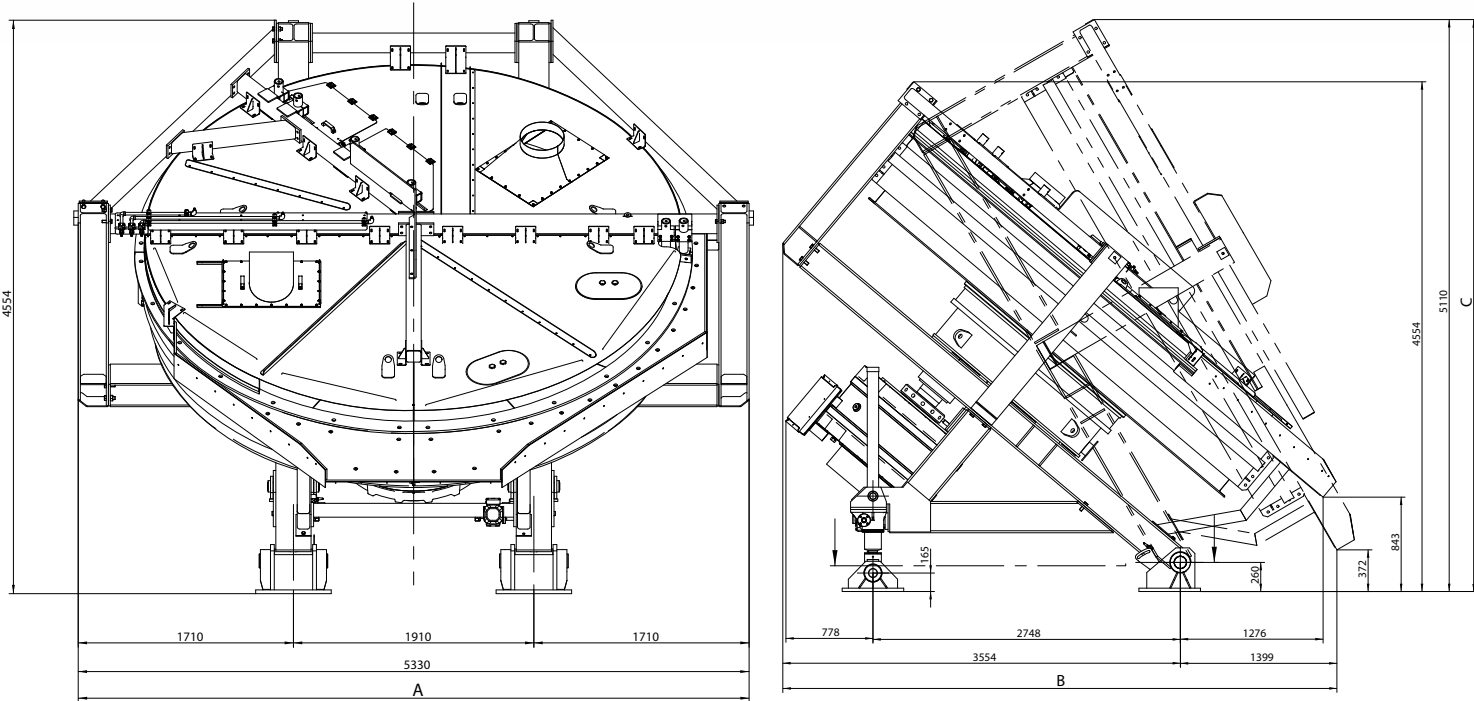
After: cleanly washed product





PELLETISING DISCS

Several references in Australia and worldwide assembled at HAVER & BOECKER Australia and prepared for tests at your job side.



ADVANTAGES OF PELLETISING DISCS

The pelletising disc is used for agglomerating powder-type primary and secondary materials such as fine concentrates and filter dust. The powder-type input material is formed into pellets inside an inclined, cylindrical and rotating container, with or without the addition of a liquid binding agent. The optimum operating parameters can be set by changing the inclination angle, the speed of rotation and material conditioning.

- Advantages
- Rugged and vibration free design
  - Automatic inclination adjustment during operation
  - Wear protection on the pelletising disc bottom (comb bottom)
  - Flexible bottom surface and sidewall scrapers
- Flexible spray system
  - Central lubrication system
  - Energy efficient and low maintenance drive unit torque motor
  - Start-up even under full load

Technical Specifications						
Disc diameter	Weight	Drive unit	Rotary speed	Large roller bearing unit	Lubrication pinion	Sidewall height
4,2 m	16,5 t	Direct drive 123 kW	0-20 rpm	with internal gearing	made of PU	450 mm
Automatic inclination adjustment using a threaded spindle						
stepless 40° to 60 °						
Installed power for inclination adjustment						
2,2 kW						
Adjustment speed						
1.2 °/min						
Wiper						
Ceramic /tungsten carbide						
Wear resistant cladding						
PE 1000 (UHMW PE)						
Wear resistant cladding, disc bottom						
Fiberglass-reinforced plastic or steel grating						
		inclination angle [ ° ]	A [mm]	B [mm]	C [mm]	
min/max		40 - 60	5330	4820 - 4953	4554 - 5110	



# PROUD TO SUPPORT THE SUSTAINABILITY OF THE AUSTRALIAN MINING INDUSTRY

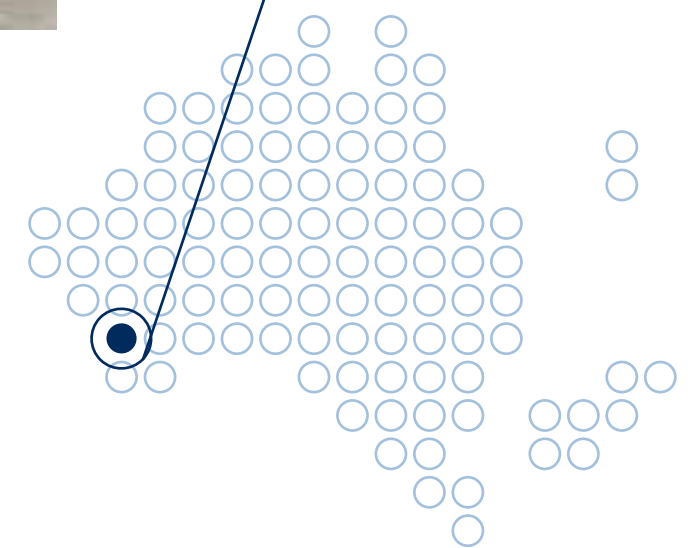


The  
beginning  
—  
until now



PERTH  
AUSTRALIA

We are thankful and proud to be of  
service to you!





#### **Australia**

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