

# Sweden – pop stars, tennis stars and engineering stars



grindex

**Sweden is renowned for producing stars and for unsurpassed engineering in fields from automotive to agriculture.**

From that history of endeavor and excellence comes Grindex. A world- leader in electrical submersible pump technology for such demanding applications as construction, mining and heavy industry.

The pumps are known for their reliability, durability and dependability and, thanks to the built-in SMART motor protection and the air valve, the pumps can run unsupervised for longer periods, and even run dry for a length of time.

**Only the Swedes could've come up with this one! Tack så mycket.\***

\* Thanks so much.

# When all parts are greater than the sum

Grindex pumps are all about return on investment. Their renowned, time-tested Swedish engineering and their focus on quality, performance, and durability permeate everything they do – down to every single screw. Their complete commitment and responsibility distinguish them from the rest.

## Low life-cycle cost

Just as only ten percent of an iceberg is visible, only the pump's price tag is obvious at first. However, all recurring costs – installation, operation, inspections, and service – affect the pump's total cost of ownership. With Grindex pumps you minimize the need for maintenance, reduce the number of unplanned and planned service standstills, and experience a prolonged equipment lifespan.

## Installation: just plug and pump

- All in the head of the pump – SMART
- Easy to install, no external starting box needed
- Ergonomically designed for easier handling

## Operation: lasting performance

- Long-term wear resistance – durable Hard Iron™ impeller
- Spin-out grooves keep debris from entering the seal
- Air valve – snoring / dry running capabilities
- Intelligent protection with SMART
- High efficiency

## Service: simplified maintenance

- Service-friendly with standard tools
- Uniform design, service one – service all
- Fast, easy adjustment of the impeller
- Few components to maintain
- Ergonomic design of the strainer

## On site inspections: speedy check-ups

- Quick, easy access
- Large opening of the electrical compartments for easy access to components
- Removable design of the strainer for easy inspection of the hydraulic parts
- External access for checking the oil and seal

# Pioneering technology

Grindex's dedication to develop customized solutions has formed the foundation for several breakthrough innovations. These inventions are now part of all their pumps, and constitute the main factor behind their unbeatable reliability, durability, and dependability. Their pumps simply thrive in harsh conditions.

## SMART – protects the motor

Grindex's SMART electronic surveillance system, first developed in 1990, is a vital element in their pumps. With its three-fold motor protection, it shields the pumps from electrical problems.

- Built-in plug and pump; no need for external start boxes
- Phase-failure guard protects against phase loss
- Temperature guard stops the pump if it reaches high temperature
- Automatic restart after stop
- Phase-sequence control ensures that impellers turn in right direction



## Wear / hydraulic parts – prolong the lifespan

Thanks to exceptional wear resistance, the wear and hydraulic parts help to prolong the lifespan of Grindex pump equipment, while securing high efficiency.

- Minimize the performance drop – thanks to innovative design
- Improve operation and performance in harsh conditions
- Optimized design and materials for specific applications, e.g. drainage, sludge, and slurry



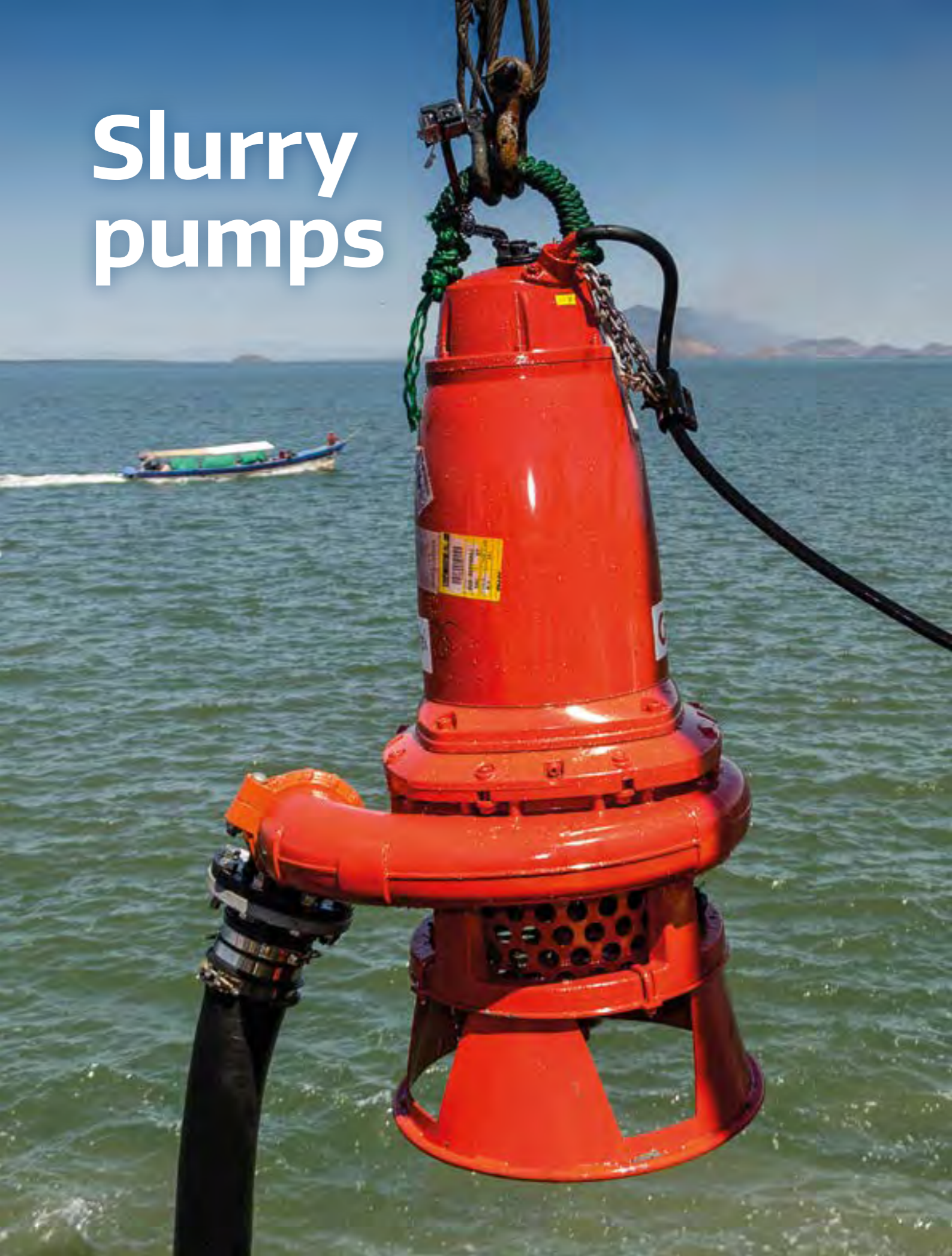
## Air valve – cools the pump

Grindex invented and patented the world's first air valve in 1960, and have included this feature in most pump models. Thanks to this, and their built-in motor protection, their pumps are able to run unsupervised for long periods. In fact – for any models with the air valve, they guarantee them with a 2 year dry run burnout warranty!



- Enables pump to run dry for a length of time
- Minimizes the risk of operation interruptions
- Minimizes the need for maintenance

# Slurry pumps



## Submersible slurry pumps for pumping fluids with abrasive solids – when others fall short.

Pumping slurry is one of the most demanding applications for any pump; parts wear out, maintenance and repair costs are high, frequent pump failures lead to costly production downtime, and excess sediment build-up causes trouble. Grindex slurry pumps provide an effective solution to all that, and offers an excellent value in terms

of initial investment. They are designed for use in quarries, mines, dredging, cleaning of settling ponds, and other applications and industries that require pumps with very high durability. Consequently, each part of the Bravo pump is made for maximum endurance and reliability.



## Did you know?

### First slurry pump in 2005

Grindex's slurry pumps in the Bravo family are designed for pumping fluids with high concentrations of abrasives, like sand and stones. Hydraulic components in Hard Iron™, one of the hardest materials available, solve the wear problem.

### Pump no. 400,000

In 2014, Grindex celebrated the production of pump no. 400,000. Over the years, the pumps have been sold to a variety of industries in 100 countries.

# Bravo slurry pumps

200, 300, 400, 500, 600, 700, 800, 900

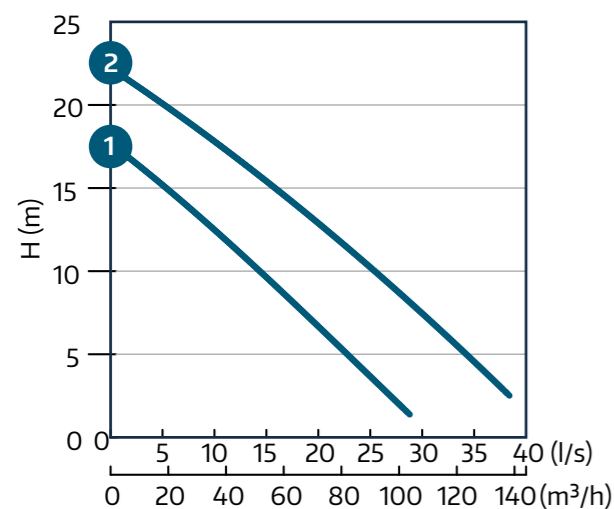
All Bravo pumps can handle liquids with pH 5.5 – 14 and are extremely wear-resistant – thanks to the use of Hard Iron™ and the low shaft speed.

They are designed for pumping slurry and fluids with a high content of very abrasive solids in sizes up to 50 mm. Bravo 400–900 are equipped with an agitator to stir up settled material toward the pump intake. Bravo 400–900 can also be fitted with an optional cooling jacket for use in dry pit applications. Bravo 200 and Bravo 300 are intended for applications with lower demands that need no agitator.

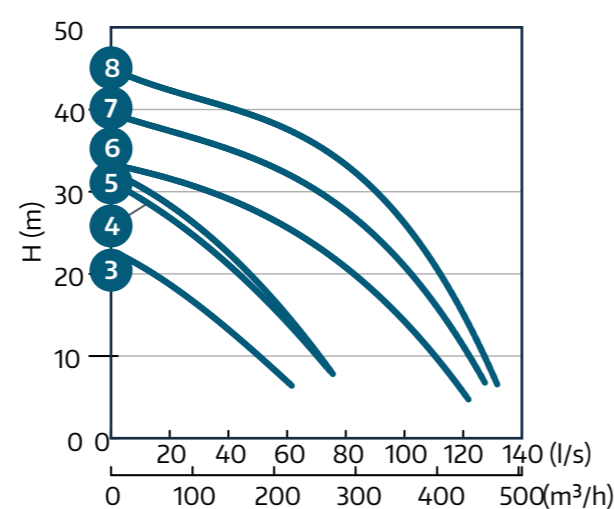
Primo pumps 50 Hz				
	discharge connection	phase (ph)	max power consumption (kW)	weight (kg)
1. Bravo 200	4"	3~	5.7	157
2. Bravo 300	4"	3~	7.1	157
3. Bravo 400	4"	3~	16	231
4. Bravo 500	4"	3~	21	293
5. Bravo 600	4"	3~	25	293
6. Bravo 700	6"	3~	40	613
7. Bravo 800	6"	3~	49	613
8. Bravo 900	6"	3~	75	845



Bravo 200-300 – 50 Hz



Bravo 400-900 – 50 Hz



## External control panel

- Phase sequence supervision
- Phase failure guard, overload protection
- Leakage detection patented the world's first air valve in 1960

## Surveillance

- Sensor in the inspection chamber
- Sensor for the detection of water in oil housing (Bravo 200 and 300)

## Pump housing

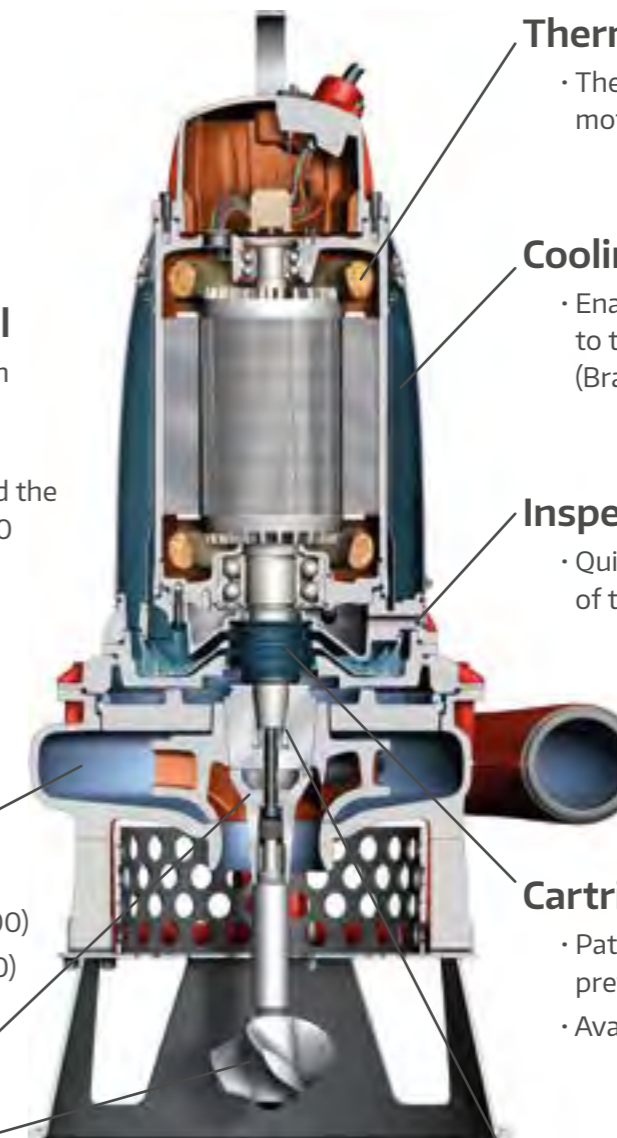
- Cast iron (Bravo 200 and 300)
- Hard Iron™ (Bravo 400–900)

## Closed impeller

- In Hard Iron™ for maximum wear resistance

## Agitator

- More solids into suspension
- Integrated agitator removal function
- Available on Bravo 400–900



## Thermal protection

- Thermal protection of the motor prevents overheating

## Cooling jacket

- Enables pumping down to the strainer – Optional (Bravo 400–900)

## Inspection plugs

- Quick and easy inspection of the seal / oil condition

## Cartridge seal

- Patented, leakage preventing seal technology
- Available on Bravo 400–900

## Single adjustment Sleeve

- Quick readjustment to as-new performance

## Options

### Explosion proof

All Bravo pumps are available in an explosion proof version and are ATEX and FM approved.



Cooling jacket

Bravo 400–900



Level regulator



Victaulic coupling

Bravo 400–900