

 **ROBOT PUMPS**

**RS 22**

the new generation

**grinders**



# The new generation RS 22 grinder pumps

## Introduction

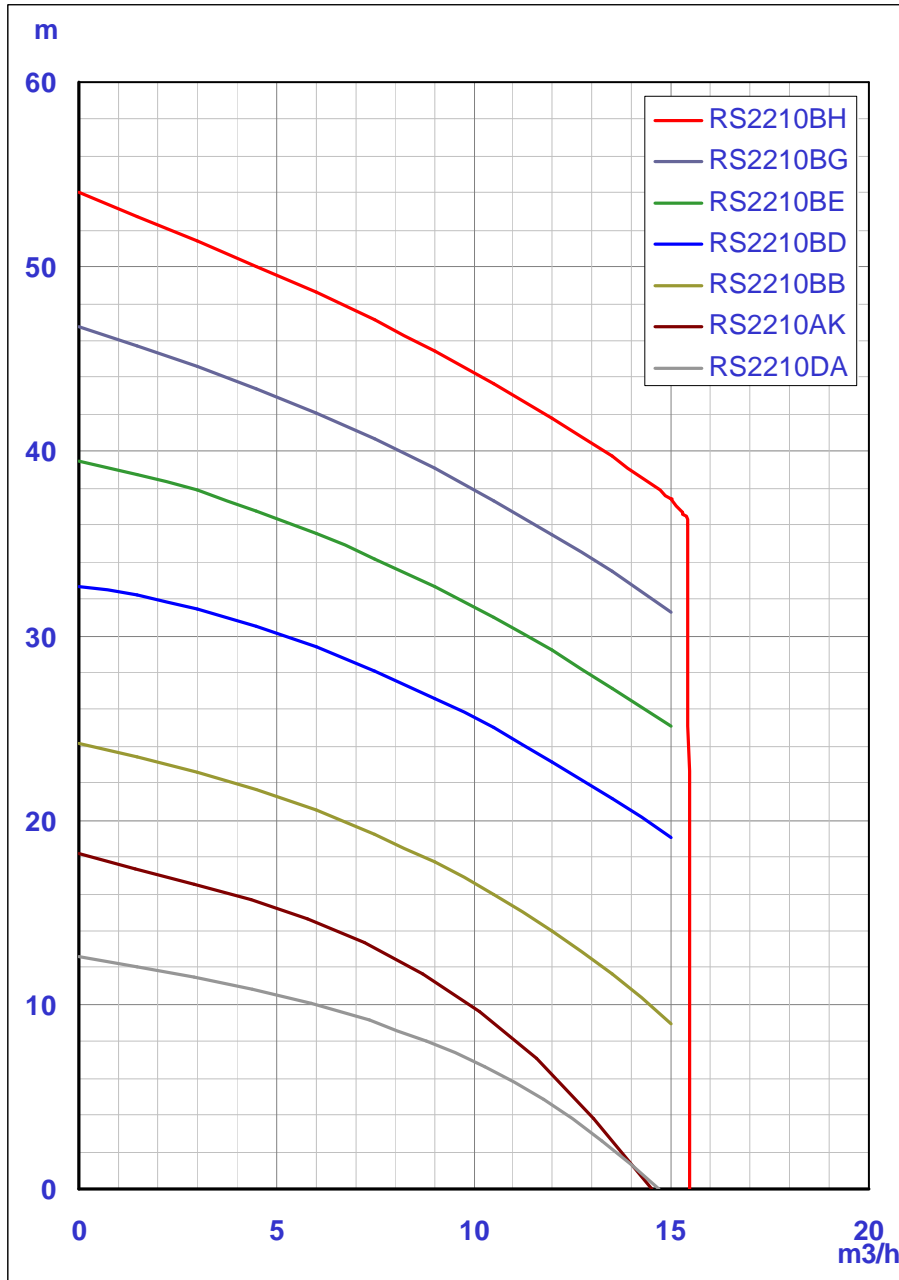
The first series grinder pumps were already introduced in the mid eighties of last century. Since then we only have re-designed the motor to have 2 mechanical seals rather than a lip seal at the motor side. Many additions had been made to expand the range or to overcome some problems that we noticed in using these pumps. High time to upgrade the range and to make it state of the art again so that we will be able to maintain the competitive price levels, now and in future.



## Proven grinder design

The Robot grinder pumps are recognized as effective and reliable. In our home market they also caught the attention of our competitors for that reason.

So let me start with easing your mind in saying that we have not changed the well proven concept of the grinder. In fact the cutting parts are the same and fully interchangeable with previous grinder range. Also the material and hardening are still the same.



## Impeller/volute improvements

We have optimized the hydraulic design of the impeller and volute. This had a great impact on the heads, in particular for the larger impellers.

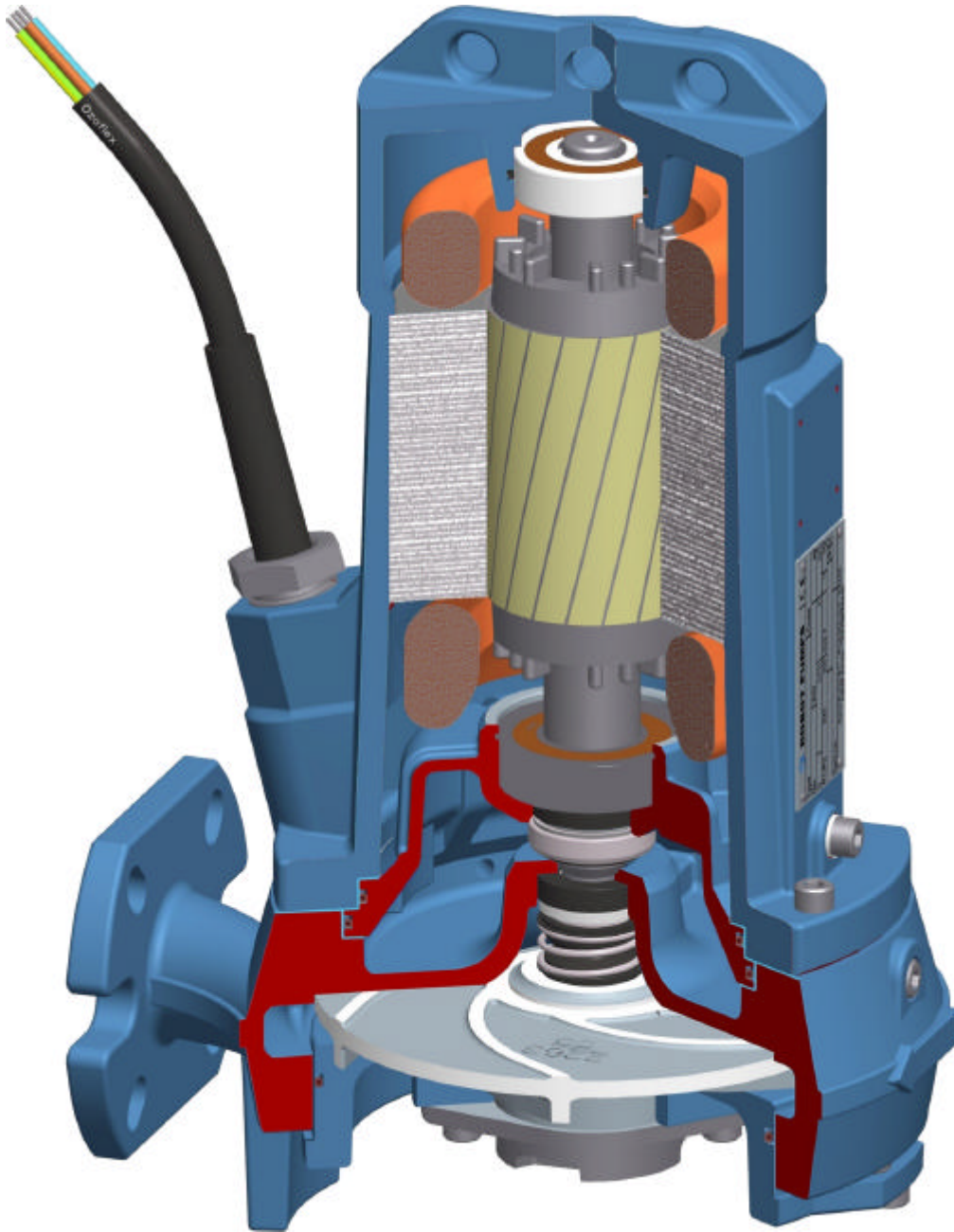
Maximum head increased from 44 to 54 m for the 4 kW BH motor and from 35 to 39 m for the popular 2.6 kW BE motor. Even the 4 pole DA increased with 20% from 10.5 to 12.5 m. The 4 pole 1.5 kW DC motor now is replaced with the new 2 pole 1.1 kW AK motor, increasing head from 12 to 18 m. The BB 1.5 kW and BD 2.2 kW are practically the same. The new BG 3.3 kW motor completes the range.

The QH curves are much steeper, minimizing flow variance and limiting the risk for pumps to run at the vertical section of the QH curves. Running at this vertical section is only allowed for limited time as the high flow velocities inside the grinder passageways can lead to cavitation damage.

As for the previous range, we will only supply standard impeller diameters and not trim impellers.

## Maximum flow

As for the old range, the maximum flow is limited to some 4 l/s~15 m³/h. This is sufficient to get the required minimum flow velocity of 0.75 m/s for sewage in 80 mm discharge pipes. For larger pipe sizes: our recommendation remains: do not grind the solids, use our vortex pumps to pump the uncut solids.



### **New bearing housing**

The rubber bellows that forms the upper wall of the oil chamber in the old range is replaced with a cast iron bearing housing. At the same time we made the volute and seal housing from one piece.

With this design Robot left the idea of making universal motors that fit to all pumps. This was good for interchangeability, but not for the overall cost of all pumps involved.

The today's number of units that we produce justifies this change in concept.

### **Shaft seals**

The shaft seals are the same as in the old pumps, but the motor side seal is no longer in reversed position. For this, the shaft had to be modified with the addition of a circlip groove to fix the motor side seal. The new shaft is upwards compatible that is it fits in old grinder, vortex and channel pumps and mixers. Your existing stock cannot be used for the new pumps.

### **What has not changed**

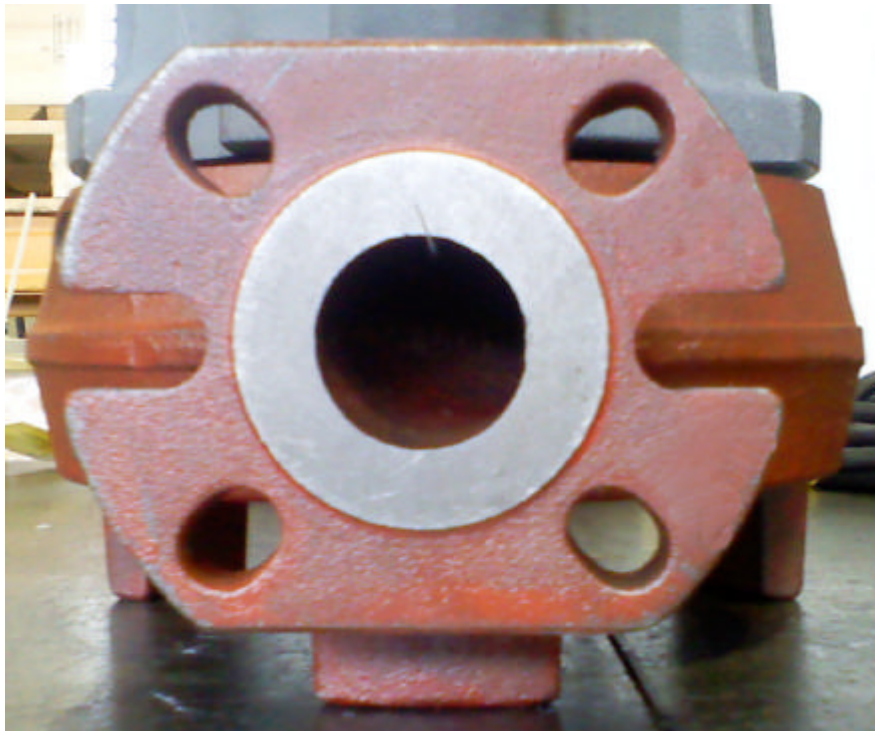
Not changed are: the stainless steel & tapered shaft end, back vanes at the impeller, motor and related parts, stainless steel cable glands, etc.

### **Discharge flange**

The discharge flange is special. The 4 slotted holes fit a standard DIN/BS DN40 as well as DN50 PN6 flange. The 2 holes at the side fit our V 50 coupling and all existing adapters.

The DIN/BS flanges allow easy interchangeability with competitors who also use DIN/BS flanges and central outlets.

The other way around remains more complex as competitors still need an adapter flange to fit to our V50 coupling.



### **Support feet**

The volute has now 3 cast on sturdy feet. This not only eliminates the need for a separate stand for transportable pumps, but it avoids damage to the impeller to liner adjustments as the pump no longer stands on the suction cover.



### **Suction cover**

The suction cover is now adjusted with 3 bolts rather than 4. Also the adjusting bolts no longer are screwed into the suction cover but into the volute. The bolts are no longer sticking out several centimeters catching all sort of solid materials passing by, but are neatly behind the suction cover. The small holes next to the clamping bolts make them accessible with an allen key.

## **Finishing**

The new RS 22 series grinder pumps come with the new paint system that meets all current VOC and internal ITT ESH requirements for environmental, health and safety.

The coating is applied by means of electrostatic spraying.

The top coat is a high-build two components polyurethane coating Amercoat 4076, dry film thickness 80 micron, color RAL 5009.

The primer for the motor housings and other parts subject to heat is Dimetcoat steel primer 210, 25 micron and parts not subject to heat Alkyde ZF primer, Amercoat 124 As, 25 micron.

## **Explosion proof models**

We expect the certificate for the explosion proof version any day now. Until then we have to use the explosion proof pumps from the previous range. We will inform you separately once the certificate is released.

## **60 Hz range**

The pumps are available in 60 c/s, however currently we do not have the performance data and data sheets available. Once released, we will inform you.

## **Single phase motors**

The range of single phase motors is also extended. New is that we recommend 2 capacitors, one for start and one as running capacitor. However we still recommend avoiding single phase motors whenever possible due to the lower overall performance and complex requirements to make and keep it a reliable pump system.

## **Options**

All options and installations that were available for the previous range are also available for the new range.

## **Future expansions**

We are working on a fully stainless steel version of the grinder range. Further details will follow once these pumps become available.

## **Documentation**

Data sheets will be made in English (50 & 60 Hz), German, French and Dutch as well as installation dimensions, motor data sheets etc.

For further information or clarifications please contact your area manager of The Robot Export Team: Michael, Steven, Jasper or Ad.

---

*Ad Beljaars  
30 July 2007*