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**FOOD WASTE, SLUDGE & GRIT PUMPING,
GRIT REMOVAL, CLASSIFIERS,
SEPARATION & DESLUDGING**

Who are EMS

EMS are a UK based manufacturer of positive displacement ram pumps and grit removal solutions used traditionally in the waste water industries but also in the food waste (AD) sector.

Established in 1995 by the three existing Directors, EMS has since grown into a world renowned name for providing robust, reliable products which have provided our substantial client list with many years of trouble free service.

We are proud of our products and the fact that where possible we look to utilise local companies in and around the Stoke on Trent area, many of whom have been with us since we were established.

As a framework provider to some of the major UK utility companies, we ensure that our products meet with all current legislations and continually strive to provide innovative products to the market place.

All EMS products are designed, manufactured and tested in our Stoke on Trent operational facilities where we can also offer additional services including spare parts, service & repairs, installation, commissioning, operator training packages and full CAD and 3D modelling services.

Our team of trained and fully certified engineers are available on a 24/7, 365 day basis to again provide peace of mind for our valued customers.

More recently EMS has been awarded the Investors in People accreditation which adds to the existing certifications that we have already achieved.



EMS Apprentice Scheme

Sustainability is a word often used in conjunction with apprenticeships but in reality not a great deal of thought or action goes into providing or maintaining this.

At EMS we realised a number of years ago that if we were to maintain and improve on our position in the market place then we would have to start planning for the future with our engineering and office based employees.

We had always looked at employing apprentices but this was done through local advertising and did not always provide the best candidates.

After looking at our processes we have now introduced the EMS Apprentice Scheme in which we formed links with two local colleges and universities and actively visited these to introduce EMS to the pupils with great success in such that we have since employed eight mechanical apprentices with a number of these progressing into CAD design and Project Management roles within the company.

Since commencing the EMS Apprentice Scheme we have been accredited by the Institute of Mechanical Engineers (ImechE) and are one of only two companies in Stoke on Trent to receive this accolade.

Being part of ImechE means that on completion of their formal apprenticeship the trainee will receive a professionally recognised qualification.

For further information on the EMS Apprentice Scheme please contact:

Joe Meakin
joe.meakin@msgb.com



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VRM Range

This is our VRM (Vertical Ram Mechanical) Pump range. It is practical and durable allowing spherical objects of up to 75mm to pass through it.

The VRM has discharge pressures of up to 7 bar and flows of up to 480 litres per minute.

Our VRM pumps are suitable for numerous applications including Sludge Transfer, Digester Feed, Grit Removal and Food Waste, 24-hour operation, slow speed and quiet operational functions.

All of our VRMs can create a suction vacuum of up to 0.85 bar the equivalent to 8.5 metres static suction lift.

Our VRMs come in a range of sizes:

- VRM175
- VRM250
- VRM270





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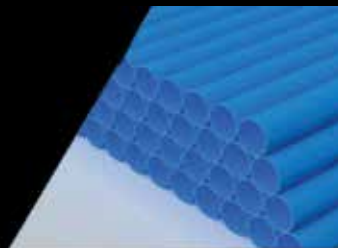
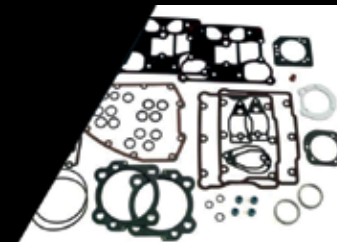
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VRH Range

This is our VRH (Vertical Ram Hydraulic) Pump range which delivers a higher pressure than the VRMs, with a discharge pressure up to 25 bar, the VRHs can also carry a greater volume with flows up to 1800 litres per minute.

Our VRH pumps are suitable for numerous applications including Sludge Transfer, Digester Feed, Long Distance Transfer, Grit Removal, Filter Press Feed, Grout Pumping and Food Waste.

All of our VRHs can create a suction vacuum of 0.85 bar – the equivalent to 8.5 metres static suction.

Our VRHs come in a range of sizes:

- VRH175
- VRH250
- VRH250L
- VRH270
- VRH270L
- VRH350
- VRH350L
- VRH400
- VRH500

(Please note – the suffix "L"
denotes a long stroke option)





CVR

The CVR (Compact Vertical Ram) is the smallest of all our pump range but one of the most popular for projects where high pressures or flows are not required.

Primarily used for to de-sludge primary settlement tanks and also on grit removal applications.

They have a flow rate of up to 140 litres per minute and discharge pressures up to 4 Bar.

Our CVRs can create a suction vacuum of up to 0.85 bar – the equivalent to 8.5 metres static suction lift.

The CVR is an ideal choice for:

- Suction of sludge up to 10% dry solids
- Flow rate of 140 litres per minute
- Energy efficiency and monitoring
- Slow speed operation

CVRD

Our CVRD (Compact Vertical Ram Duplex) range delivers the same pumping pressure as the CVR with two sludge rams that can deliver twice the flow at a more laminar flow.

One sludge ram lifts as the other is pushing down, giving a more time efficient flow.

The CVRD range has a flow rate up to 900 litres per minute and discharge pressures up to 5 Bar.

The CVRD range is suitable for numerous applications including PST de-sludge, Sludge Transfer, Digester Feed, Grit Removal, and Food Waste.

Our CVRDs can create a suction vacuum of up to 0.85 bar – the equivalent to 8.5 metres static suction lift.

Our CVRD range comprises:

- CVRD200
- CVRD300



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EMS HYDRAKE



The EMS HYDRAKE is an hydraulically driven grit rake that takes the standard grit rake from the 20th century to the 21st century. The HYDRAKE is totally modular in build and is fully functionally tested before delivery to site at our facility so reducing installation and commissioning time considerably. The HYDRAKE has been built with maintainability at the forefront of its design. The standard grit rake has over twenty "difficult to access" greasing points. All maintenance access for the HYDRAKE is made from the top of the machine. The standard rake operates typically around 12 – 14 strokes/minute whereas a HYDRAKE operates around 2 strokes/minute. This is a *massive reduction in wear and tear* on the machine assemblies.

The HYDRAKE has a very much more digital operation than the analogue operation of the standard rake, this makes the operation of the HYDRAKE far more accurate and controllable. The speed and stroke length of the HYDRAKE can be changed easily by the operator. The operator also has the ability via the manual operation controls to operate the machine either "backwards or forwards", this is a massive advantage over the old technology when clearing obstructions in the grit rake.

The HYDRAKE has very controllable power and a protection system installed. The HYDRAKE is protected electronically by the variable speed drive which will stop operation if the machine starts to over torque. The hydraulic system will only allow the system to generate the required power to safely drive the grit rake.

We have currently created the HYDRAKE in two sizes:

- HR120 (12 metres in length)
- HR140 (14 metres in length)

But each Hydrake is built specifically to the requirements of each individual customer. This means we can create smaller and larger Hydrakes to suit each site. For more information please contact us.

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EMS CLASSIFIER



The overwhelming success of the EMS ram pump in grit removal applications spawned a natural progression for EMS to design and manufacture its own complete range of grit separation systems.

Manufactured from 304 or 316 stainless steel the GC250 is the smallest and the GC2000 the largest in the range.

Looking beyond the conventional appearance of the classifier you will find engineering features that deliver efficiency, reduction in maintenance and save energy.

The functional design of the machine features a high tensile steel auger riding upon replaceable stainless steel wear bars. The void between the wear bars allows the material to drain as it passes up the conveyor tube. Optional water jets in various configurations can be provided to wash the grit as it passes up the conveyor tube.

The steep sides of the classifier leave the grit no place to accumulate and no option but to fall into the large diameter auger below. Classifiers can be built with multiple inlet and outlet ports to simplify the pipe work connections.

The drives on the grit classifiers are inverter controlled providing variable speeds for optimum grit discharge or optimum grit dryness as well as many other options.

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EMS CLASSIFIER CONT'D

Operating as a batch process, the powerful drive and robust stainless steel structure allow the classifier to stand idle, sometimes for several hours while the grit accumulates inside. The grit is then discharged in a matter of minutes delivering maximum energy savings with minimal wear & tear. The inverter control of the drive also provides varying rotational speeds for the auger.

All EMS products are designed and manufactured in the UK. EMS also provides site surveys, optioneering, system design and consultation as well as manufacture, mechanical and electrical installation, commissioning and after sales service all from its factory base in Stoke on Trent.

- GC250
- GC500
- GC1000
- GC1500
- GC2000

DETRITOR

The Detritor is a continuous flow tank in which the grit settles due to gravity and the water overflows through the outlet weir on the opposite side.

The settled grit is scraped by means of a scraper mechanism towards the grit hopper openings situated on the Detritor sidewall at the bottom.

The collecting mechanism consists of three structural steel arms that are attached to a vertical shaft and fitted with outward raking blades with scoops fitted on the ends.

A Detritor motor/gearbox drive arrangement would be mounted centrally on the Detritor bridge from which would be suspended a central drive column for the grit collection scrapers.

Current designs feature a robust, bridge mounted slewing ring driving a much heavier centre tube. This provides an assembly that can withstand all the lateral forces generated by the power of the drive and the resistance to scraping the grit on the floor of the Detritor. A worm wheel gearbox along with a torque limiter and drive motor are mounted on a galvanised steel bridge featuring galvanised hand rails and galvanised open mesh flooring with kick plates.

The drive motor would be driven by a variable speed drive, delivering speed control, saving energy and more importantly providing superior protection for the scraper bridge assemblies.

EMS offers two options with regards to removing the grit from the collection hoppers:

- The EMS HYDRAKE
- EMS grit pumping arrangement.

Both systems deliver superior grit removal and an excellent "whole life cost".



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Food Waste (AD) Pumping

Although relatively new to the Food Waste pumping sector EMS have made great strides in providing customers with both existing and new AD plants a robust, reliable and cost effective alternative to the existing pumps in the market place.

The introduction of the EMS pump came as an increasing number of plant owners were identifying issues surrounding premature wear, huge costs for quantity of replacement parts and causing significant mechanical intervention in both time and costs.

Many of these issues were on equipment situated in crucial points in the AD process such as transferring the incoming pulverised waste onto the thermal process or the heated waste in the thermal process onto digestion. Failures on both these processes could and did incur significant costs to their businesses.

EMS offered trials of our ram pumps to these customers and in every case these proved hugely successful with little or no interventions required other than standard maintenance activities and a massive reduction in spare parts and engineer interventions.

In every case where an EMS pump has been trialled in a food waste application, the customer has progressed to order a least one pump. Payback on these pumps has been as little as 4 – 6 months in certain cases.

We firmly believe that the EMS ram pump is the best whole life cost option for pumping of Food Waste in the AD market and our sales team are happy to discuss any requirements you may have.

Please contact us: sales@ems.gb.com

Sales and Support

We firmly believe that supporting the customer through each step of a project provides a platform to ensure that the end result is achieved.

Customer relationships form the cornerstone of our business model.

EMS can offer a full package of pre order site visits, CAD and 3D modelling, mechanical and electrical installation services, commissioning and full operator training packages.

All of our staff are fully trained to the highest standards and hold all the relevant certifications for the work required.

Our engineers are available on a 24/7, 365 day basis with our main stores holding a substantial stock of parts to suit our equipment.

We feel that all of this provides our customers with the knowledge that EMS will support them throughout the life of their product.

EMS Pump Specification

Model	Drive	Flow L/min	Pressure Range (Bar)
CVR200	Mechanical	70 – 140	0 – 4
CVRD200	Mechanical	150—300	0 – 4
CVRD300	Mechanical	450 – 900	0 – 4
VRM175	Mechanical	90 – 210	0 – 7
VRM250	Mechanical	250 – 400	0 – 7
VRM270	Mechanical	270 – 480	0 – 7
VRH175	Hydraulic	90 – 210	0 – 25
VRH250	Hydraulic	250 – 400	0 – 25
VRH270	Hydraulic	270 – 480	0 – 25
VRH350	Hydraulic	300 – 950	0 – 25
VRH400	Hydraulic	500 - 1350	0 – 25
VRH500	Hydraulic	865 - 1800	0 – 25




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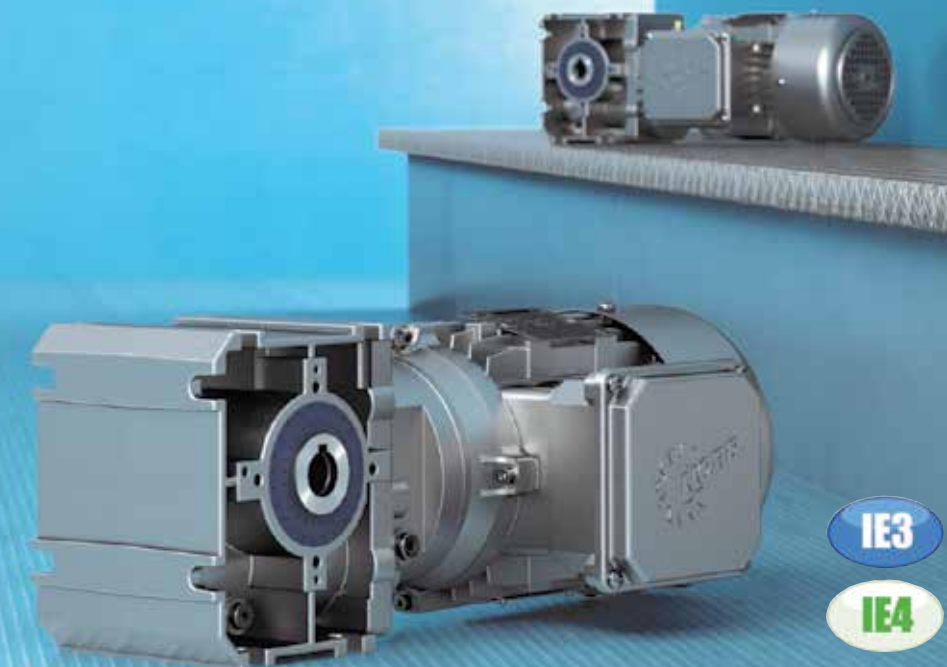
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