The Cavitator®

Brand of Drilling Fluid (Mud) Gas Extractor

Description and Overview Manual

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Overview

Typically, the mud gas extractors employed today are an overly heavy construction, potentially unsafe, and are very hard to manipulate or adjust.

The iBall Instruments Cavitator brand of mud gas extractor allows for the easy manipulation of adjustments, ease of service, and safety for the users and area.

Using a common and easily adjustable 3 part platform that is attached to the drilling spoil separator (also known as the Shaker, Possum Belly), the user can choose between 4 various types of powered Cavitation motors.

The 3 part attachment platform is comprised of the Clamp assembly, Arm assembly, and Barrel assembly.

The Clamp And Arm Assembly

The Clamp And Arm Assembly is comprised of heavy 13 gauge steel square and round tubing construction and deep chrome plated hardware. The 2 clasps are an industrial rated 1000 lb. wing nut adjustable assembly that allows for the extension or retraction of the Arm Assembly over the spoil separator. All parts are powder coated with an aggressive SureGrip texture to assure maximal clamping and a minimum of slipping.

The Barrel Assembly

The Barrel assembly is attached to the Arm assembly. The Barrel assembly also allows for the motor beater assembly to be attached easily to the top for ease of service and maintenance.

The Barrel assembly has an attachment at the top that allows for the extraction of the separated gasses from the drilling fluid (mud).

This design allows for the efficient extraction of drilling mud gasses and control of the sample collection chamber. This is an improvement over other extractors that act much as a centrifugal pump and spit drilling mud from the side. The long vertical tubing also acts as a condensation tower that helps eliminate much of the water vapor in the extracted sample.

The Cavitator also has a 3/4” diameter vent hole on the side of the extraction chamber that allows for atmospheric pressure equalization.

This 3/4” vent can be shielded or blocked off completely for adjustments in sample gasses extracted.

A simple and inexpensive rubber cap blocks the upper condensation tube opening. The upper tubing is fitted with a brass nipple where the sample extraction tubing is attached.

Clean up is easily facilitated by just removing the rubber cap and rinsing with pressurized water.

Rock cuttings do not pose an occlusion problem in the extraction tube because if any buildup accumulates above a certain point in the tubing it will just slide back down into the main chamber due to gravity. Sample extraction is enhanced by the Cavitator improved main chamber design. This also helps eliminate sample dilution.

The smaller design has also allowed this extraction system to attach directly to smaller shakers.

Motor Beater Assemblies

The motor beater assembly is a lightweight, high power motor assembly that is attached through a steel cap that attaches to the Barrel assembly. The shaft of any of the motors is attached to a balanced stainless steel custom fork assembly that is tested and spin at 2000 RPM to cavitate the drilling fluid to extract the entrapped gasses.

The Motor beater assemblies come in 4 types depending on the setting and environment of the user.

(1) The Air motor beater assembly or;
(2) the 12-24 VDC MagMotor beater assembly or;
(3) the 12-24 VDC explosion proof MagMotor beater assembly or;
(4) the 120-240 VAC motor beater assembly.
Each type of motor type has its advantages.

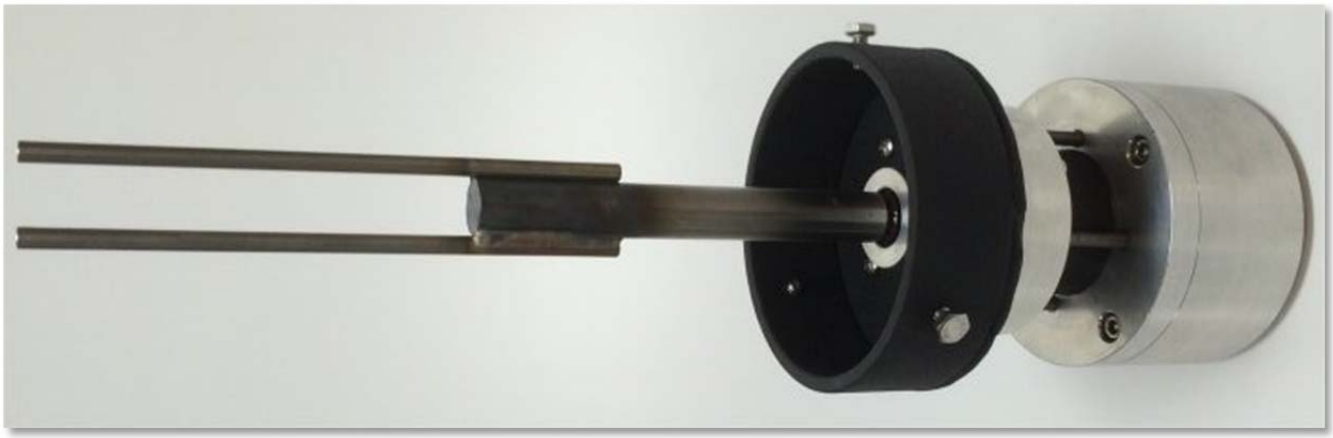
Air Motor Beater Assembly

The Air driven motor beater assembly can typically be driven with 10-50 PSI of air depending on the type of drilling fluid it is used in. It is protected from over pressure with a 60PSI pop off valve at the air motor assembly. This motor assembly is ATEX Certified as well as Class 1, Division 1 explosion proof. It is classified as an oil-less motor, however, we also sell a water trap / in-line oiler and pressure regulator to go with it.

The Water trap has a built in water dump so that if water does collect in the line and trap, it will automatically be dumped when the float level inside reaches about an inch. Also, the regulator portion will keep the pressure nominal while the post oiler can maintain a mist of oil to the air motor beater assembly.

Explosion Proof 12-24 VDC MagMotor Beater Assembly

The 12-24 VDC Explosion motor is good for environments that an need explosion proof rated DC motor. This motor assembly is ATEX Certified as well as Class 1, Division 1 explosion proof. The design is based on rare earth magnets for extremely high efficiency as well as low current low voltage design in extreme rugged environments. Comes with a 15 foot ATEX rated flexible cable already attached to the main housing. This motor beater assembly comes with a 6 month Limited Warranty.



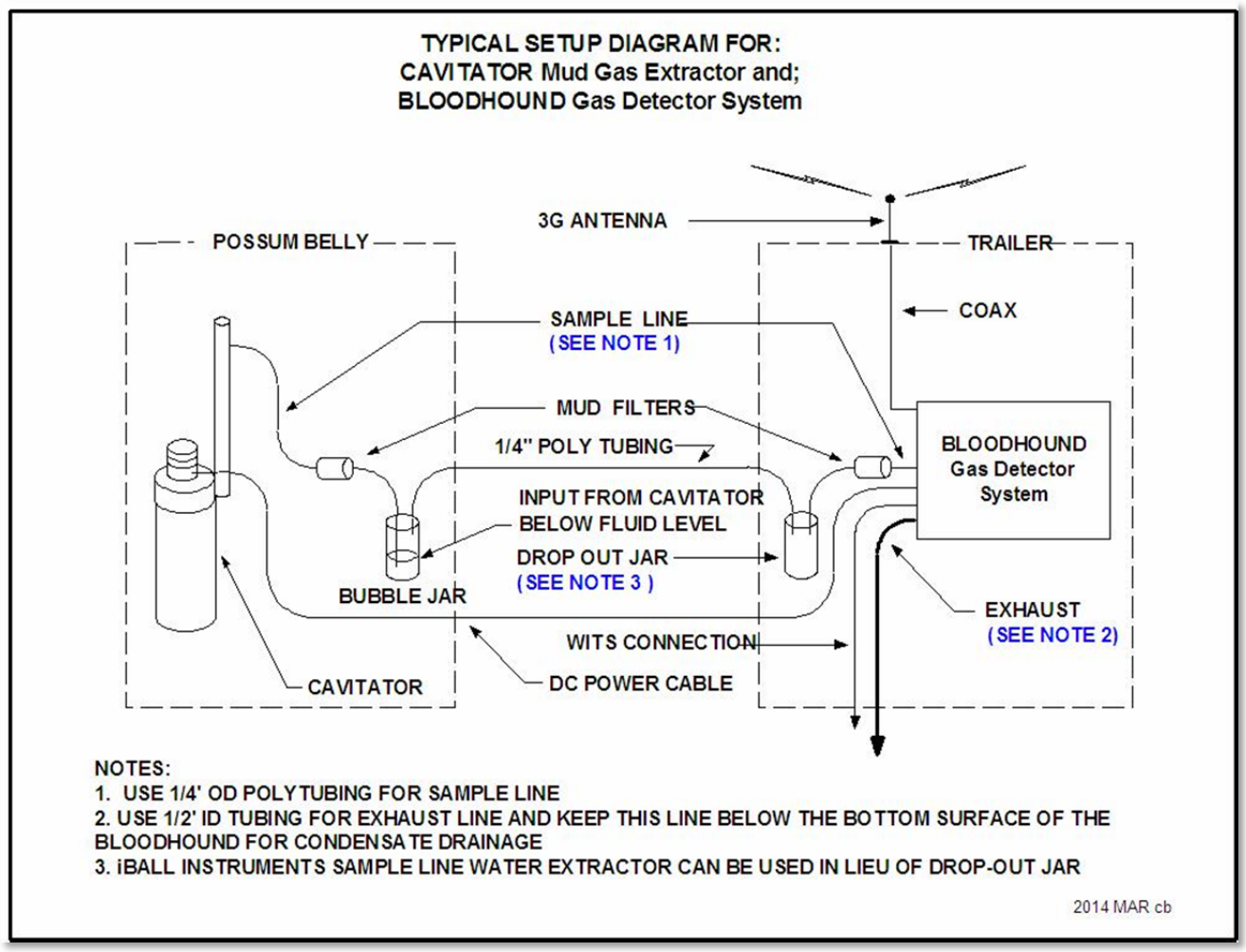
Explosion Proof 120-240 VAC Motor Beater Assembly

Includes explosion proof conduit box. The selectable 120 or 240 volt AC motor assembly is utilized for more general installations at the shaker where low voltage solutions are not available. This motor assembly is ATEX Certified as well as Class 1, Division 1 explosion proof and built by the Marathon Motor Corporation. It has the same welded steel construction with stainless steel tines.

The Cavitator® brand of mud gas extractor has been used worldwide by companies which include Baker Hughes, Horizon, Columbine, as well as numerous others.

Easy Setup And Maintenance

The Cavitator brand of mud gas extractor allows for very easy setup and maintenance and can be set up in as little as 30 minutes according to the following diagram.



DC Power Cabling Suggestions

The power cabling is sized according to the job at hand.

If the distance between the power supply and Cavitator is under 200 ft, then 14 gauge cable is ok.

If the distance between the power supply and Cavitator is over 200 ft then 12 gauge cable should be used.

If the distance between the power supply and Cavitator is over 500 ft then 10 gauge cable should be used.

If using smaller gauge wire over long distances for DC voltages, the voltage to the motor will be lower.

iBall Instruments LLC.

Cavitator DC MagMotor Motor Beater Assembly

LIMITED WARRANTY POLICY

All iBall Instruments LLC. Cavitator DC MagMotor Motor Beater Assembly components are manufactured of first-class material, and are assembled utilizing skilled workmanship and warranted for 6 months from date of purchase.

iBall Instruments LLC. warrants each MagMotor Cavitator MotorBeater Assembly to be free of defects in material or workmanship under normal use and service. The warranty period commences on the day the product is purchased by the original consumer purchaser for a period of 6 months and is non-transferable. This warranty does not apply if in the sole judgment of the company, the product has been subject to accident, faulty repair by customer, improper adjustment, improper installation, improper lubrication, or improper electrical wiring, neglect, misuse; or is caused by failure of a part not provided by iBall Instruments LLC.

This warranty shall not apply if any iBall Instruments LLC. product is used for which it is not designed or altered in any way so as to affect adversely its performance and reliability. iBall Instruments LLC. reserves the right to examine the products or parts to confirm that the part has failed as the result of material or workmanship.

Transportation for products and parts submitted to the company for warranty consideration must be prepaid. Repaired or replaced parts will be shipped at iBall Instruments LLC.'s expense.

No charge will be made for labor or material in effecting warranty repairs or replacements.

The obligation of iBall Instruments LLC. under this warranty is limited to making good by repair or replacement as the company deems most appropriate.

No items in request of warranty should be returned without the consent of iBall Instruments LLC. Please call first.

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iBall Instruments LLC. neither assumes nor authorizes any other person to assume on its behalf any other warranty or liabilities in connection with any company products. This warranty does not apply to any other losses including loss of time, inconvenience, and other incidental or consequential damages.

iBall Instruments LLC. shall not be liable for incidental or consequential damages arising out of or from the use or abuse of any company products by the buyer, its assignees, employees, agents, or customers.

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