



OPERATORS MANUAL FOR ROCKCRETER HIGH SHEAR MIXER



SOUTH AFRICAN SHOTCRETE TECHNOLOGY
Designed to perform, the power to succeed!

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As part of our policy of constant product development and improvement information and specifications contained in this document are liable to change.

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1. SAFETY PROCEDURES

Recommended items to keep pumping safe:

- a. Hard hats.
- b. Safety goggles.
- c. Dust masks in confined spaces or unventilated areas.
- d. Good lighting.
- e. Whip check cables and chain safety couplings on air supply hoses.
- f. Rubber gloves to protect workmen with skins sensitive to cement burns (also use barrier cream).
- g. Sturdy and safe lifting devices, platforms and scaffolding for those many pumping operations that are performed off the ground. All platforms should be equipped with safety rails.
- h. A qualified electrician must do all electrical connections.
- i. Do not remove the screen/sieve supplied on the hopper whilst the machine is in operation.
- j. Do not carry out any maintenance whilst the air or electrical connections are connected to the machine.
- k. Do not poke or prod any instrument of any sort into the hopper whilst the machine is in operation.
- l. Use safety straps on all grout hose connections.
- m. Keep arms, hands, fingers etc away from moving parts.
- n. Disconnect power/air before attempting to clean or repair equipment.

2. TECHNICAL SPECIFICATIONS

ROCKCRETER HIGH SHEAR MIXER	
Dimensions	
Length	1000 mm
Width	950 mm
Loading Height	1380 mm
Weight	+270 kg
Mixing capacity	250 L
Rotation speed	1450 Rpm
Internal flow system	900 L/min
Approximate capacity	5 m ³ /h
Water connection	1" Bsp
Liquid temperature	Max 40 °C
Drive Options	
Electric drive – 7.5kW./ 380V or 525V	

3. PRINCIPLES OF OPERATION

NOTE:

The principles of operation offered herein are intended as an aid to help the operator identify some of the factors that need to be taken into consideration when mixing and pumping cementitious grouts. Because wide varieties of materials are available for many different applications, it is important the operator becomes familiar with the specific characteristics of the material he intends using.

3.1 General Description

1. The mixer comprises of a single vortex mixing tank with a high shear pump driven by an electric motor.
2. The unit is capable of mixing ratios of up to 1:3 by weight to produce pumpable high strength grout mixtures.
3. The grout mixture is repeatedly recirculated through the high shear pump that breaks down any clusters of dry ingredients to ensure that all the dry material and water is completely mixed.
4. The vortex action inside the mixing tank rapidly feeds the mixture into the high shear pump and speeds up the mixing process.
5. The mixture properties of the finished grout make it virtually immiscible with water and ideal for use in wet conditions.

3.2 Materials

1. Among the commercially manufactured materials available in today's market are materials for structural repairs, floor toppings, high strength non-shrink grouts, special linings and other specialty materials.
2. Each of these materials has unique characteristics, which must be well understood to insure a successful application.

3.3 Flow

1. In general, most materials need to be a flowable or pourable consistency for successful pumping. This means that if the material can be poured out of a pail or bucket, it can likely be pumped.
2. The exception to this requirement is repair mortars, which tend to be mixed in a thicker consistency and require special pumping techniques.
3. Materials that contain aggregates pump best and perform best when the consistency is kept to the lower range of pourable, that is, not too wet.

3.4 Setting Time

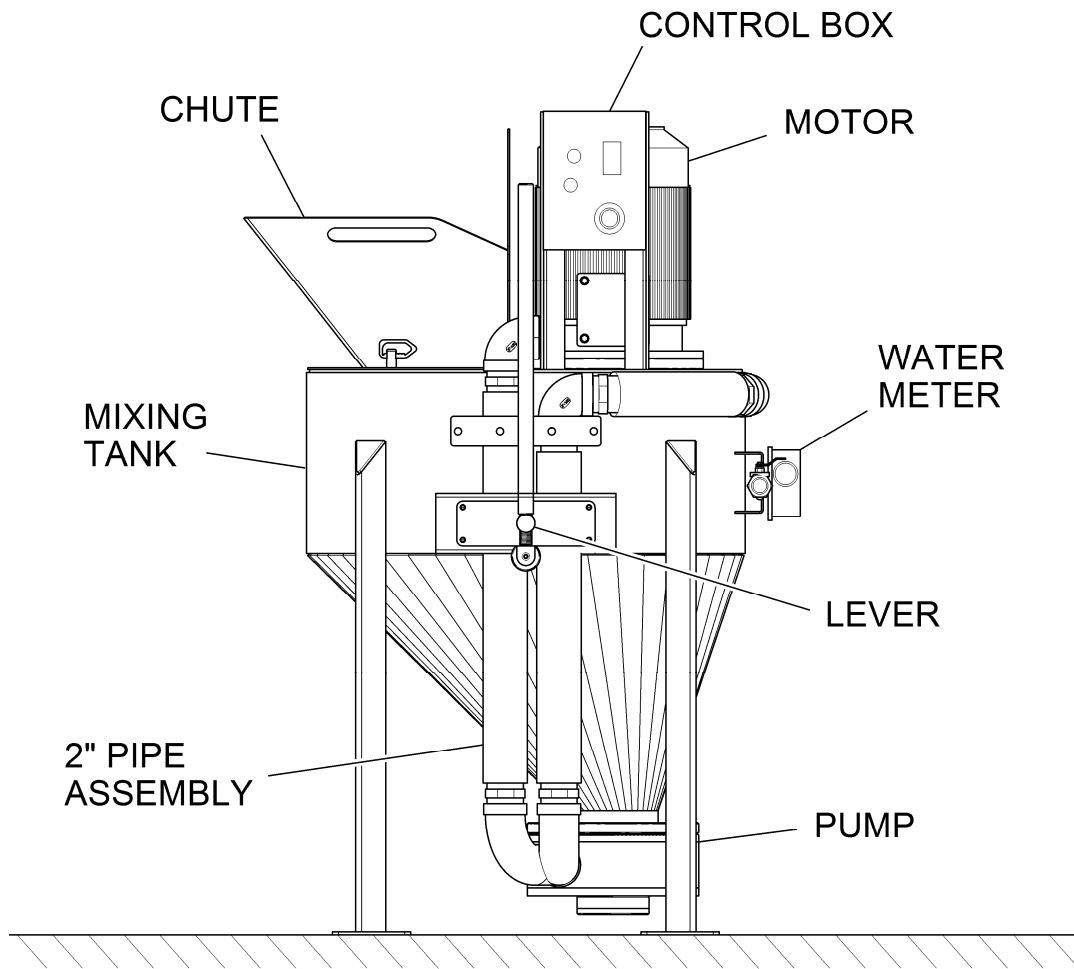
1. Some materials contain accelerating admixtures to reduce the setting time. This is particularly true of repair mortars and other spray applied materials so that strength gain can be fairly rapid. It is important to keep moving when using these types of materials.
2. Once the material is mixed, it must be pumped immediately and kept in motion and subsequent batches must be mixed and pumped as rapidly as possible. Any delays in the application process could result in plugged hoses and equipment.

3. Temperature also has an effect upon these materials to the extent that exposure of the hose to the sun on a hot day will accelerate the set time even more, therefore this should be avoided. It may even be necessary in some cases to cool the material, the mix water, or even the hose itself.

3.5 Pumping Distance

1. Pumping distances should always be kept to a minimum, and hoses should run as straight as possible no matter what material is being used.
2. Sometimes circumstances require longer than usual hose lengths, when this occurs, every effort should be made to use every advantage possible to insure a successful application. Some materials simply cannot be pumped for long distances, so it's best to know the proposed material characteristics before attempting a production procedure.

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RE ROCKCRETER HIGH SHEAR MIXER

Figure 1

4. OPERATING PROCEDURES

4.1 Set- Up

1. Check for any loose fasteners or fluid leaks.
2. Check for any component wear.
3. Secure the chute onto the top of the mixing tank.
4. Make sure there is enough water in the mixing tank to cover the pump.
5. Connect the motor cable to the power out connector.
6. Connect the power cable to the main power in connector.
7. Connect the power cable to an appropriate power source.

4.2 Priming with Water

1. Attach a water feed hose to the water inlet.
2. Make sure the feed lever is in the recirculating position.
3. Fill the mixing tank with water to the required level needed for the mix.
4. Turn the main power disconnect switch to the “ON” position and allow the mixer to run and prime the pump.

NOTE: Do not run the high shear pump without water. The pump will overheat and cause damage.

4.3 Mixing

1. The feed lever must be in the recirculating position.
2. The mixing tank must contain enough water for the mix ratio (Refer to the mix ratio table).
3. Switch the high shear mixer on.
4. Add the grout mix gradually to the water through the chute.
5. Allow the mixture to recirculate until it has a smooth uniform texture. It may require multiple passes through the high shear pump to completely blend the mixture.
6. The grout is now ready to pump.

NOTE: Cleaning should be done frequently (every few hours depending on the grout mixture used).

4.4 Cleaning

NOTE: Failure to flush prior to material curing in the system will result in damage to the system and may require replacement of all system parts in contact with material.

1. Make sure the feed lever is in the recirculating position.
2. Fill the mixing tank with water and let the high shear pump run.
3. Drain the water from the tank.

4. Switch the mixer off and clean the inside of the tank with a hose and brush.
5. Repeat the tank rinse until the discharged water is clear.
6. Clean any grout spillage on the mixer.
7. Turn the main power disconnect switch to OFF.
8. Dispose of all waste material in accordance with local rules and regulations.

4.5 Shutdown

1. To shutdown, first clean the high shear mixer (Refer to 4.4).
2. Disconnect from the power supply.

NOTE: In cold environments, water left in the pump system could freeze and damage the equipment. When working in cold environments, drain all water from the pump system to avoid damage.

4.6 General Maintenance

1. Check the seals for leaks
2. Grease bearings.
3. Clean and remove any grout spillage.
4. Check for wear on the hoses and hose connections.
5. Check all fasteners are correctly tightened.

NOTE: General maintenance intervals will depend on the operating conditions. Extremely wet or dusty conditions will require maintenance more often.

4.7 Mix Ratio Table (This is a guide and is for reference only)

Cement To Sand	Water To Cement	Per 50 KG Of Cement	
		Water (L)	Volume (M ³)
1:0	0.42	22.7	0.29
1:1	0.47	25.0	0.47
1:1.25	0.51	27.4	0.52
1:1.5	0.56	29.5	0.59
1:1.75	0.62	32.9	0.63
1:2	0.66	33.7	0.70
1:3	0.85	41.6	0.93
1:4	1.12	54.9	1.20

ROCKCRETER HIGH SHEAR MIXER – PRE USE CHECK LIST

Checked by:	
Date:	
Time:	
Section:	
Comments:	

**WARNING: REPORT DAMAGE, DEFECTS
OR FAULTY OPERATION IMMEDIATELY.
DO NOT OPERATE ROCKCRETE PUMP UNTIL
CORRECTED**

	Checked and in order
	Checked and found defective

SAFETY PRECAUTIONS

1. Isolate all electrical connections during inspection and maintenance.
2. Keep hands away from moving parts.
3. Wear all necessary safety gear.

BEFORE STARTING THE ROCKCRETER HIGH SHEAR MIXER

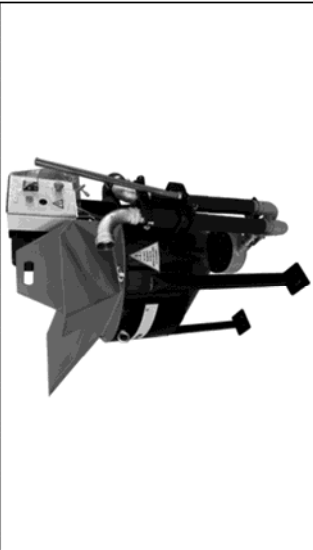
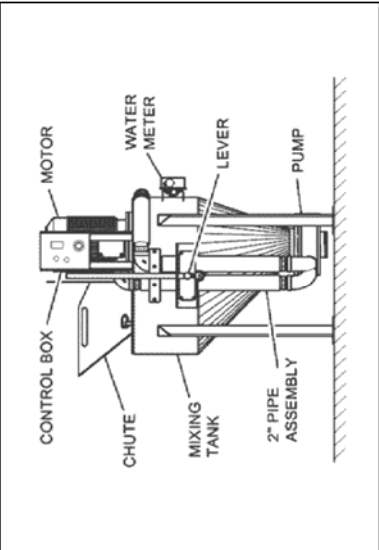
1. Check that water pressure is sufficient.
2. Check all electrical & water connections are in safe working order.
3. Check the pump, if worn, replace. Apply grease before reassembling.
4. Check discharge, clean & replace if worn
5. Check hoses for any material or blockages before turning on the machine.
6. Check and make sure the sieve is in place and secure.
7. Check nozzle tip for any blockages, if blocked clean. Check o-rings. Apply grease on o-rings.
8. Check shaft for wear.
9. Check clamps & gaskets are in place and secure to all fittings.

AFTER STARTING THE ROCKCRETER HIGH SHEAR MIXER

10. Check rotation of pump – anti clockwise
11. Check smooth operation of ROCKCRETER HIGH SHEAR MIXER

NOTE: ALWAYS KEEP ENOUGH WATER ON SITE OF CLEANING

ROCKCRETER HIGH SHEAR MIXER

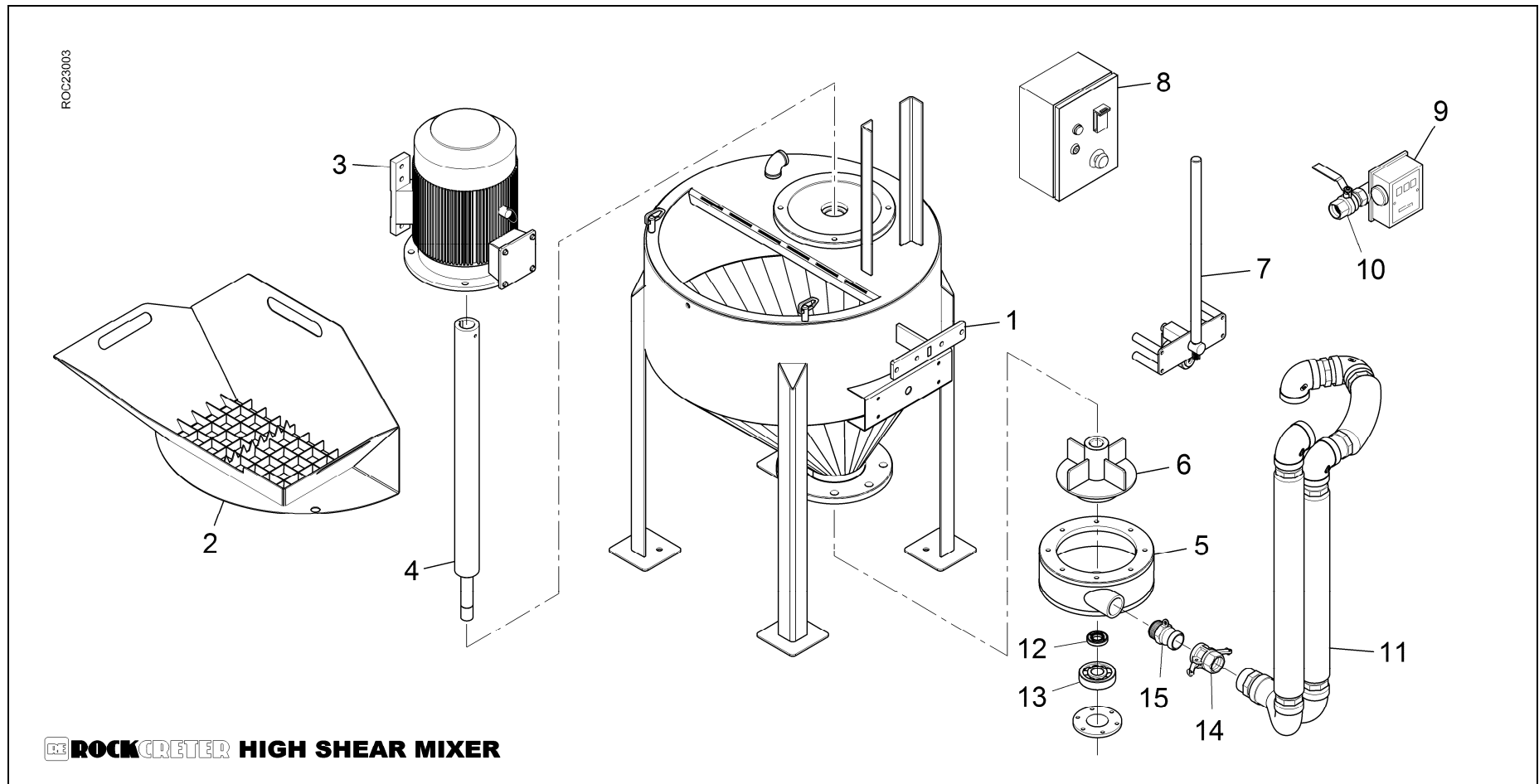


CHECK	GO	NO GO
1		
2		
3		
4		
5		
6		
7		
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9		
10		
11		

CONTENTS LIST

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1. BODY ASSEMBLY



1. BODY ASSEMBLY

ITEM NO	DESCRIPTION	PART NO	QTY	COMMENTS
1	MIXING TANK ASSEMBLY	UARCHSM	1	
2	CHUTE ASSEMBLY	EA001HS	1	
3	7.5 KW MOTOR 380V/525V	EA027C/EA028C	1	
4	SHAFT	KGPF007HS	1	
5	PUMP HOUSING	HS001	1	
6	HIGH SHEAR IMPELLER	HSIMP	1	
7	CONTROL LEVER	HS002	1	
8	CONTROL PANEL	EA037B/EA037	1	
9	FLOW METER	KGPF009	1	
10	VALVE WATER 1"	PV05	1	
11	PIPE/HOSE	E001-1.5	1	
12	BEARING 6406	HS014	1	
13	SEAL 30577	HS011	1	
14	CAMLOCK B200	W006V	1	
15	CAMLOCK F200	W005	1	

