

## **BICO DULIN ROTAREX SEPARATORS**

For the determination of bitumen content and gradation of aggregates in bituminous paving materials. Operation requires only 10 (ten) minutes. The sample is weighed, heated slightly to start crumbling, cooled, then placed in the Rotarex bowl. Now solvent is added. When set in motion, centrifugal action forces all liquid through the sample and out through a filter paper gasket at the periphery of the bowl, effectively cleaning and drying the sample. The solvent is periodically added to the sample while the bowl is in motion until it runs perfectly clear from the drain spout. Aggregates may then be weighed and graded. Weight before and after the extraction of bitumen determines constituent proportions.

Solvent is recovered via an aluminum catch basin and drained from a spout. The bowl cover is held in place by a center filler screw, which is a funnel shaped piece that screws into the power shaft head. It also serves as an inlet for additional solvent while the Rotarex is running.

All moving parts are fully enclosed and the machine is mounted on vibration absorbing rubber cushions.

The electric motor brake, quickly stops rotation at the end of the process to eliminate valuable lost time between tests.

## **BICO DULIN ROTAREX**

### **INSTALLATION AND OPERATING INSTRUCTIONS FOR THE FOLLOWING MODELS:**

<u>MODEL#</u>	<u>CAPACITY</u>	<u>VOLTAGE</u>	<u>LBS/KG</u>
111-70-1	1000 GRAM	115 VOLT	111/51
111-70S-1	1500 GRAM	115 VOLT	111/51

**\*\*CONFORMS TO A.S.T.M. D 2172 A.A.S.H.O. T 164\*\***

**\*\*ALL MOTORIZED ROTAREX EXTRACTORS ARE EQUIPPED WITH 1/4 HP, SINGLE PHASE MOTOR AND DRIVE CONTROL.**

**\*\*STATE OF THE ART ELECTRONIC CONTROL PANEL PROVIDES ACCURATE SPEED CONTROL FROM 0-3600 RPM.**

**\*\*ELECTRIC BRAKE (WHICH STOPS ROTATION IN UNDER 10 SEC.) AND TACHOMETER ARE INCLUDED ON ALL MODELS.**

## INSTALLATION

The ROTAREX should be mounted on a sturdy base using the rubber cushions provided with the unit. This eliminates vibration from an unbalanced load, and reduces noise during operation.

## POWER REQUIREMENTS

The totally enclosed non-ventilated motor is designed for operation from a 115 Volt, 50/60 Cycle or 220 Volt, 50/60 Cycle, single phase power. The motor control and three position rotary switch, which has "BRAKE - OFF - ON" functions, are on the front panel. A three (3) wire cord is supplied, the unit is ready to be connected to a grounded outlet. All models are equipped with motors using double sealed ball bearings, requiring no further lubrication.

## OPERATING INSTRUCTIONS

### New Rotarex Speed Control Settings.

To operate these machines please follow the three steps below.

1. Plug the machine into 110-volt outlet. The control box should blink 125 this is normal and means the machine is ready to run a sample.
2. Press the run/stop button on the control box and the machine will start and automatically cycle up to 3600 r.p.m in approximately 42 seconds. You will know when the machine is at 3600 r.p.m. when the indicator on the control box reads 125.
3. When done running sample press run/stop button and the machine will cycle to stop in approximately 42 seconds.

This speed control unit is set at the factory and should not have to be reset!! In the event that you have to reset the speed control unit please follow the instructions below. It is highly recommended you call our technical support line at 1-800-884-2426 7:30 to 5:00 Monday through Thursday pacific standard time before attempting to reset the speed control unit.

1. To set to 3600 r.p.m. Set the control unit to 125 on the digital display. 125 is equal to 3600 r.p.m. You can do this by using pressing up arrow key until display reads 125 and then press data/ent key.
2. To set acceleration rate to approximately 42 seconds. Press dsp/func key and use up or down arrow key to scroll to F01 and then press data/ent. Then scroll up to 20 and press data/ent. Press the data/ent button again and the control unit will flash end. This indicates the control unit is set.
3. To set deceleration to approximately 42 seconds. Press dsp/func key and use up or down arrow keys and scroll to F02 and press data/ent. Then scroll up to 20 and press data/ent. Press the data/ent key again and the control unit will flash end. This indicates that the control unit is set.
4. Press dsp/func and digital display will read 125.
5. Press run/stop machine will start and cycle up to 3600 r.p.m in approximately 42 seconds.
6. When done running sample press run/stop button and the machine will cycle to stop in approximately 42 seconds.

**TO REMOVE THE BOWL:** Stabilize the bowl and cover with one hand while removing the filler screw **COUNTER-CLOCKWISE**. The bowl can now be lifted and removed.

**TO INSTALL THE BOWL:** REVERSE PROCEDURE. Steel stem is slotted and bottom of bowl is slotted. Slots **MUST** line up. Rotarex must **NOT** be run without filler screw and cover.

Periodic cleaning of the drain spout will eliminate backup in the receptacle and subsequent leakage and damage to the motor.

### **TEST PROCEDURE**

1. Prepare sample according to instructions in official hand books of test methods; ASTM or AASHTO *references* are shown below.
2. Weigh out desired quantity of sample, and distribute evenly and uniformly around the bowl to avoid unbalanced loading. This even distribution and a slow start will allow the material to disperse properly and minimize excessive vibration. Rubber mounts used in installation will absorb normal vibrations.
3. The filter ring should be placed between the bowl and bowl cover. The cover is clamped tightly to the bowl by tightening the filler screw. A measured quantity of solvent is added through the filler screw. Small holes in the cover prevent the receptacle from becoming air bound.
4. **START SLOWLY:** In addition to reasons previously stated, this allows the solvent time to dissolve the sample before maximum speed is attained and extraction occurs.
5. **MAINTAIN SPEED:** For 15 seconds. This forces the solvent through the filter paper ring between the bowl and the cover.
6. **EXTRACTED SOLVENT** Drains from the receptacle through the drain spout and should be collected in a beaker or other container.
7. **REPEAT** For the prescribed number of solvent additions specified in the following referenced methods.
8. **CAUTION ON SOLVENTS:** Although benzene is approved in the manual of test methods, the use of Trichlor-ethylene is recommended. Avoid spilling solvent on control box.

### **REFERENCES**

ASTM Test Method for Quantitative Extractions of Bitumen from Bituminous Paving Mixtures - Designation D2172-72.

A.A.S.H.O. Part 2 - Tests for Highway Materials - Designation T164-70.

These official test methods should be consulted for detailed methods of procedure. Instructions pertain only to specific operation of the Rotarex.

## BICO MOTORIZED ROTAREX SPARE PARTS

**\*\*PLEASE ADVISE SERIAL NUMBER WHEN ORDERING SPARE PARTS\*\***

<b>CATALOG #</b>	<b>DESCRIPTION</b>	<b>LBS/KG</b>
111-77	Filter Rings for 1000/1500 Gram Rotarex (9 3/4" O.D.) (100/pk)	3/1
53-1	Base	37/17
53-2	Guard Ring Receptacle Holder	7/3
53-3	Aluminum Receptacle	7/3
53-4N	Cover Release Cam/New Style	1/4
53-5	Cover Release Screw	1/4
53-6	Drain Pipe for Receptacle	2/1
53-10	Overflow Receptacle Cover - Large	2/1
53-11	Receptacle Cover Lid - Small	1/4
53-12	Receptacle Lid handle - Small	1/4
53-13	Lid Handle Screw - Small	1/4
53-14A	1000 Gram Aluminum Bowl with Steel Stem (Slotted for S/N Later than 64498)	3/1
53-14S	1500 Gram Aluminum Bowl with Steel Stem (Slotted for S/N Later than 64498)	4/2
53-15	1000/1500 Gram Aluminum Cover for Bowl	2/1
53-16	1000/1500 Gram Filler Screw	1/4

<b>CATALOG #</b>	<b>DESCRIPTION</b>	<b>LBS/KG</b>
53-17S	1000/1500 Gram Steel Stem	1/4
53-18	Steel Stem Nut for Aluminum Bowl	1/4
53-19	Flywheel	6/3
53-23-1	Speed Control - Variac 115 Volt (For S/N 60487 - 62156)	2/1
53-23-10	115 Volt Omnephase Control Circuit (For S/N 62157 - 67238)	2/1
53-23-20	220 Volt Omnephase Control Circuit (For S/N 62157 - 67238)	2/1
53-26	Rubber Insulator - Vibration Dampner	1/4
53-52	Flywheel Holder Pin (For S/N Prior to 64498)	1/4
53-57	Indicator Dial Plate	1/4
53-58	Rheostat Dial for 4" Rheostat	1/4
53-61	Seal for Receptacle	1/4
53-65	Tachometer - Complete (For S/N 62157 - 67238 And S/N after 67690)	10/5
53-65-1	115 Volt Tachometer	4/2
53-65-2	220 Volt Tachometer	4/2
53-65C	Plastic Cover for Tachometer	1/4
53-67-1	Switch (For 115 or 220 Volt)	1/4
53-74-1	10 AMP, 3AG Fuse for Speed Control	1/4

<b>CATALOG #</b>	<b>DESCRIPTION</b>	<b>LBS/KG</b>
53-75-1	Fuse Holder Only	1/4
53-80-10	115 Volt Potentiometer (For S/N Later than 62156)	1/4
53-80-20	220 Volt Potentiometer (For S/N Later than 62156)	1/4
53-81	Capacitor (For 115 or 220 Volt)	1/4
53-83-1	17.5 OHM, 50W Resistor	1/4

<b>***NET - NO DEALER DISCOUNTS APPLY***</b>
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53-21A	Control Box - Complete Includes: Electronic Controls, Cover Plate, Knobs, Pre-Wired Button Plug (Must Specify Voltage)	28/13
53-22-1	T.E.N.V. Motor - 1/4 HP, AC, 3600 RPM 115 Volts.	28/13
53-22-115	115 Volt Armature with Bearings	15/7
53-22-1-1	Rear End Bell Assembly with Supressor 115 Volt	5/2
53-22-2	T.E.N.V. Motor - 1/4 HP, AC, 3600 RPM 220 Volt	28/13
53-22-220	220 Volt Armature with Bearings	15/7
53-22-2-2	Rear End Bell Assembly with Supressor 220 Volts	5/2