

EXAKT 50 I - 1682

Location of Machine: Advanced Composites Lab, IGRM 1308B

Location of SOP and Machine Operating & Safety Manual: Composites Lab website under resources; Composites Lab TRACS site; and Hardcopy near machine.

Emergency Contact:

- Call 911
- Call EHS & Risk Management at 512-245-3616
- Call Head Lab Technician, Dr. Ray Cook (office 512-245-2050)
- Call Dr. Jitendra S Tate (office 512-245-4872)

Before using this machine:

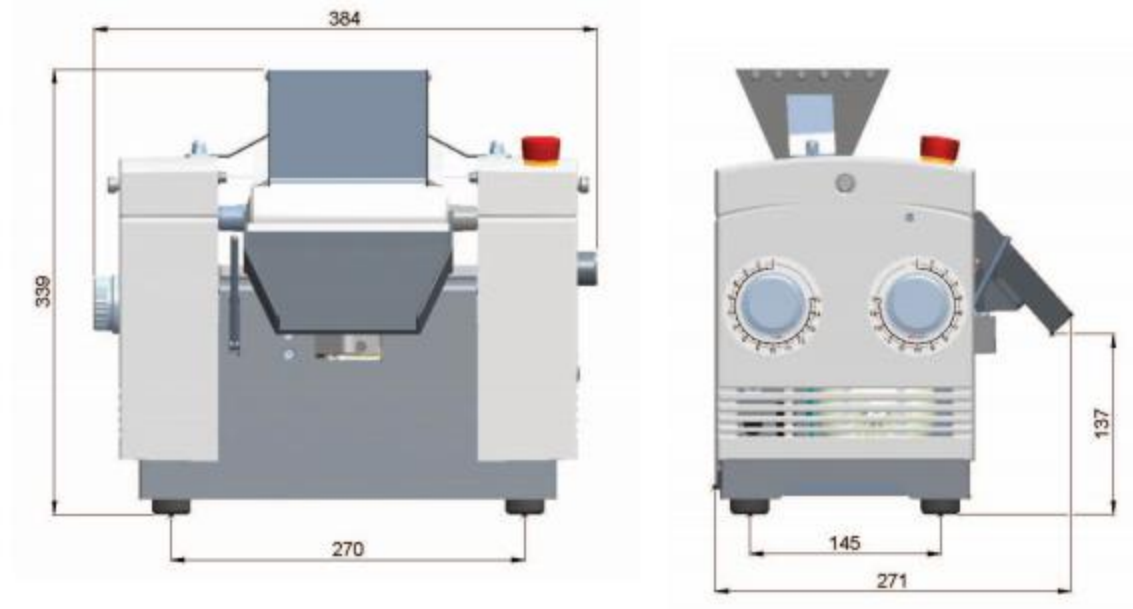
- You must have permission from Dr. Tate.
- You must have received formal training from technician or, trained research student (designated by Dr. Tate) related to machine safety and operation.
- You must read and understand **SOP**.
- You must use this machine under direct supervision of Dr. Tate or, Dr. Cook or, trained research student (designated by Dr. Tate).
- You must have signed “Lab Rules” document with Dr. Tate. This document must be signed every semester fall, spring, and summer (as applicable).
- If you do NOT follow above instructions you will be held responsible for your own safety and damages.

Safety Precautions:

Protective Equipment: Prior to performing this procedure, the following personal protective equipment must be obtained and ready for use: **Gloves, Safety Goggles, and Lab Coat.**

Important Safeguards:

1. Rotating rollers pose a risk of entanglement, coiling and latching, hence always wear tight fitting clothing.
2. Pull the power plug on the back before any cleaning work.
3. Use only approved cleaning agents.
4. There is an increased risk of injury because scrapers and scraper knives are sharp. When mounting, removing and handling the scraper pay attention to the sharp edge.
5. Do not allow the rollers to run for longer periods of time without product to keep wear on the scraper/scraper knife to a minimum
6. This procedure will result in waste which must be disposed of in compliance with environmental regulations.
7. In the event that a hazardous materials spills during this procedure, be prepared to execute the correct emergency procedure according to the MSDS.




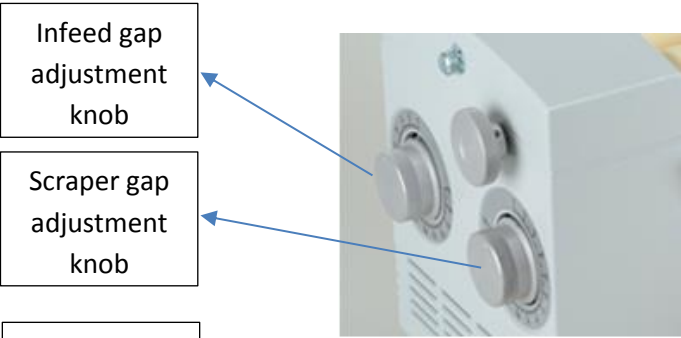
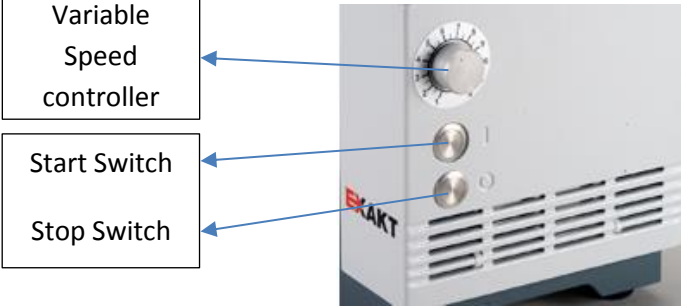
General information

In a three roll mill, particle sizes are reduced and agglomerates dispersed. The EXAKT 50 I device is a three roll mill and find application in intensive trituration, homogenization and dispersion of pulverized materials in pastes, as well as liquid or semi-liquid dispersing agents. By adjusting the gap width, the particle size can be controlled easily and very precisely on the micrometer axle.

A three roll mill has three different fast rotating rollers of the same diameter. The middle of the three rollers is stationary. The infeed roller and scraper roller can be moved toward and away from the middle roller to achieve different gap widths. The speed ratio of infeed roller (a) : middle roller (b) : Scraper roller (c) is approx.. 1:2:4.

Specifications:

Width:	370mm
Depth with scraper system:	270mm
Depth without scraper system:	220mm
Height with hopper:	333mm
Height without hopper:	290mm
Weight without roller unit:	12.3 kg
With steel roller unit:	23.6kg
With Aluminum Oxide rollers:	20.1 kg
Roller diemeter:	50mm
Roller width:	150mm

Exakt 50I Standard Operating Procedure	
<p>Turning on:</p> <ol style="list-style-type: none"> Make sure the device is connected to the power supply before it can be put into operation. Switch on the main switch on the back of the device. Make sure to put the scraper attachment on to the device. 	
<p>Starting-up:</p> <ol style="list-style-type: none"> Carefully mix the materials to be processed for a raw product. Move the rotary knob (Left side of the device) for the infeed gap on 4 and for the scraper gap on 15 and the speed setting to 1 (lowest) for initial start-up (right side of device). Slowly pour the mixture into the hopper. Press and hold start button on the right side of the device. The rollers will begin to rotate 	
<ol style="list-style-type: none"> Mixing: Change the infeed gap and scraper gap to the desired values gradually. It is very important that the infeed gap and scraper gap are coordinated. The adjustment ratio of the infeed gap to the scraper gap should not exceed approx.. 1:0.6. The table of gap adjustment ratios is provide in the end of the document 	

<p>Cleaning</p> <ol style="list-style-type: none"> Switch off the device and pull out the power connection before attempting to clean the equipment. Remove the guides, hopper and scraper from the equipment. Move the rotary knob to position 1 for both gaps. Insert the hand-wheel to manually turn the rollers into hand-wheel opening. Remove product from the rollers and in between the rollers using ethyl alcohol and a clean cloth. 	<p>Before opening disconnect mains. Avant d'ouvrir l'appareil retirez la fiche. Antes de abrir el aparato sacar el enchufe. Prima di aprire l'apparecchio togliere la spina.</p> <p>EXAKT part No.: 50 1 / 1892 manufactured: 2018 100-240 VAC 50/60 Hz 22-0,73 kW 1,0-2,0 A</p> <p>Guides</p> <p>E-Stop</p>
<p>Turning off:</p> <ol style="list-style-type: none"> The speed controller should be set to minimum speed (position 1) and the gap between rollers should be set to position 1. Hit the E-Stop button, switch off the main on the back of device. Clean any spills 	
<p>Changing Roller unit: Removing:</p> <ol style="list-style-type: none"> Turn off the device, unplug power supply, and remove scraper and guides from the assembly. Turn both rotary knobs of the gap adjustment to scale value 1. Unlatch the housing releases and carefully swing open towards both sides. Turn the rotary knob for infeed gap and scraper gap as far as it will go in range Red. Take the roller unit by handles and remove from above. 	<p>Housing</p>

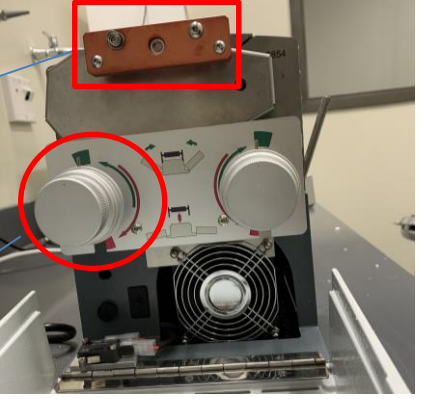
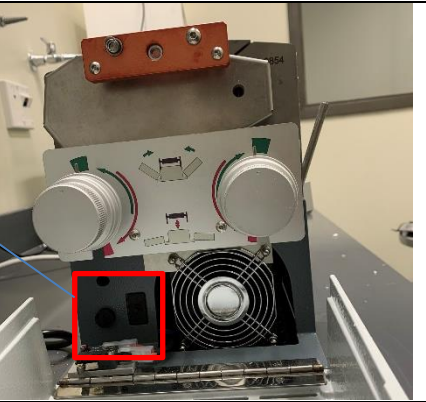
<p>Installing:</p> <ul style="list-style-type: none"> f) Use lint free cloth to clean the supporting surfaces and insert roller unit from above. g) Ensure there is proper alignment and turn both rotary knobs back to scale value 1. h) Turn rotary knobs for infeed gap to position in range “green” and then scraper gap to position in range “green”. i) Close both housing one after the other and latch housing release. j) Connect power supply. 	
<p>Overload switch actuator:</p> <ul style="list-style-type: none"> a) The device motor is protected against overload. In case of overload the switch is triggered and must be actuated to reset it. b) Unlatch the left side of housing and swing open. c) Actuate overload switch and check the device fuse. d) Close the housing and latch. 	
<p>EXAKT 50I Standard Operating Procedure</p>	

Table of gap adjustment ratios

Infeed gap	The scraper gap must be larger than
15	8
14	7.5
13	7
12	6.5
11	6
10	5.5
9	5.0
8	4.5
7	4.0
6	3.0
5	2.5
4	2.0
3	1.5
2	1.0
1	0.5

