Instruction Manual

Concrete Cylinder Sample End Grinder

Model: 2613011, 120 V, 60 Hz.

Model :2613012, 220 -240 V, 50 Hz.

Please read the instruction before moving and installing this machine and attempting to run it. Remember this machine is extremely heavy and may be unstable before installation completed. Therefore, without using proper equipment may result in severe injuries. Appropriate lifting or hoisting equipment of sufficient capacity must be used to be safe and secure. For better repositioning, use the hook installed on the upper plate of machine. For replacing in nearest location, unlock the two casters, after relocation the machine lock those again.

- **Do not decline the machine more than 30 degrees while moving or installing.**
- **Check out any accessories you have received with your packing list.**
- **Because this machine generates dust and vibration, it should be located in an area of laboratory near concrete curing tank and compression machine, because all cylinder samples need to be grinded before strength test.**
- **For service work and cleaning the water tank on the machine, it should be sufficient space left at the rear and sides of machine (minimum space: 80 cm).**
- **The machine should be levelled (very important).**
- **The power should be connected to earth wire for electrical shock proofing.**
- **The machine stands on heavy duty wheel casters for appropriate height of putting concrete specimens into machine and easy movement.**

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Introduction

We confirm that the Concrete Cylinder Sample End Grinder complies with below standards:
*- Safety of machinery — General principles for design — Risk assessment and risk reduction
(ISO 12100:2010)
*- Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design
ISO 13849-1, Second edition 2006-11-01
*-Safety of machinery — Interlocking devices associated with guards —Principles for design and selection,
ISO 14119, Second Edition 2013-10-01
*- Safeguarding of machinery, CSA Z432 -16

As we have mentioned, this machine is made based on ASTM C192, C31, 617

. It consists of a steel frame, grinding mechanisms, sliding feeder, sample holder and digital timer and control panel.
This machine is compact, easy to install and operate, long life service. Easy access to all parts of machine for repair, water tank inside of machine (not separated part), recyclable water and low vibration while grinding.

1. Specification and Accessories of Hardware

1. A Diamond grinding wheel (disc) is included.
2. A Grinding disc (11) typically finishes 3000-5000 specimens before a replacement is required.
3. The specimen presser polyurethane plate moves upward and downward easily and holds the samples tightly with the one-touch clamp (8).

5. Preset digital timer 0-100min (3).
6. Easy to install the adaptors (plate 3 and 4inches or 6inches) on the table, requires no assembly.
7. Safe access to components allows for easy maintenance.
8. Ends Planeness accuracy: +- 0.05mm.
9. Splash Stainless steel guard reduces user exposure to water and dust and use as a guard for safety.
10. Disc wheel mechanism: Electrically controlled swing arc movement.

11. Disc wheel speed: 1750 rpm
12. Moving feeder (carriage) will be returned to initial position after finishing the grinding process finished automatically.
13. Baked powder painting.
14. Dimension: W*D*H (680*670*1500mm)
15. Weight: 265 kg
16. Power supply: Model: 2613011, 120 V, 60 Hz., single phase, 1800 W.
Model: 2613012, 220-240V,50 Hz., single phase, 1800 W

For more details and updates visit: www.cantrol.ca

2. Schematic Drawing

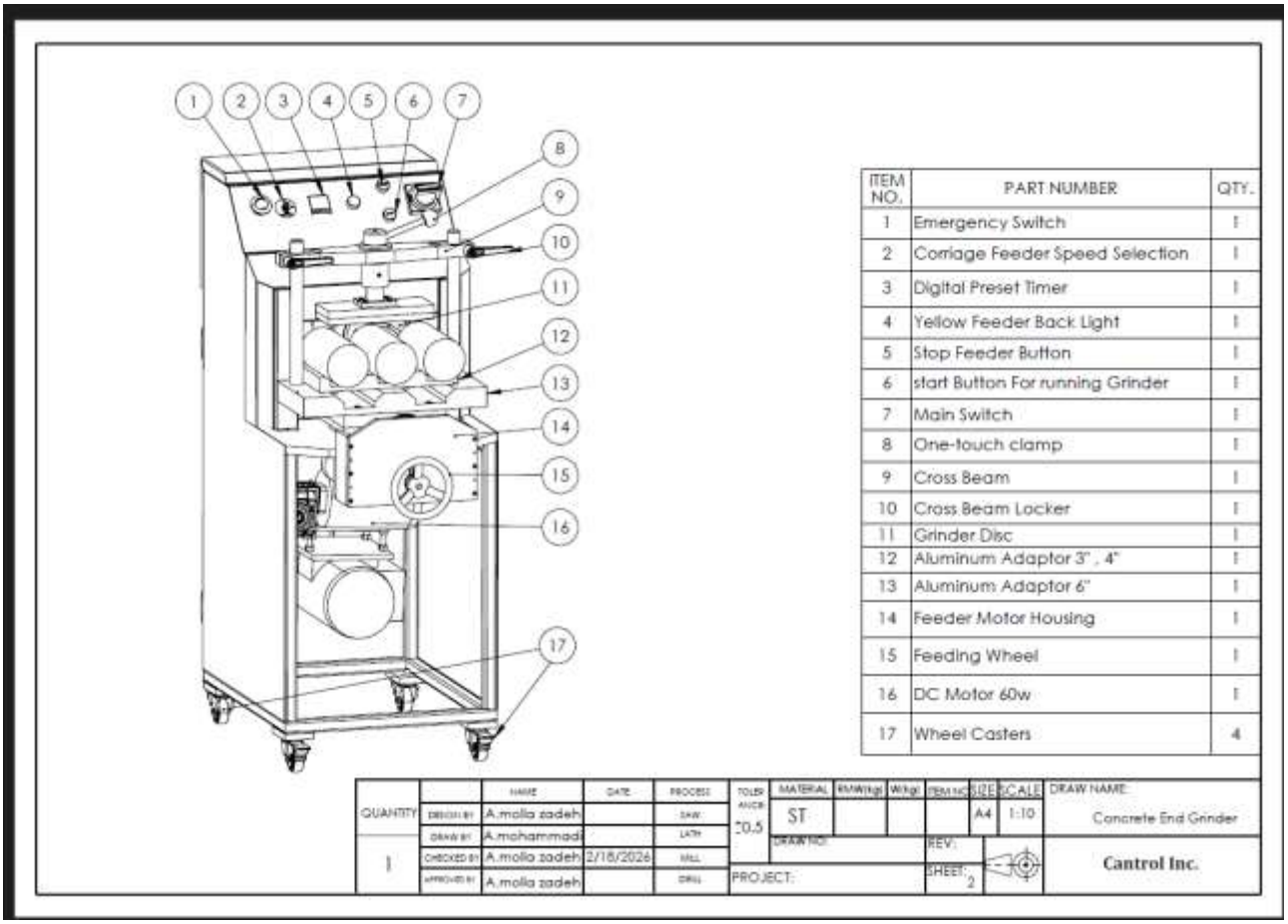


Figure 1

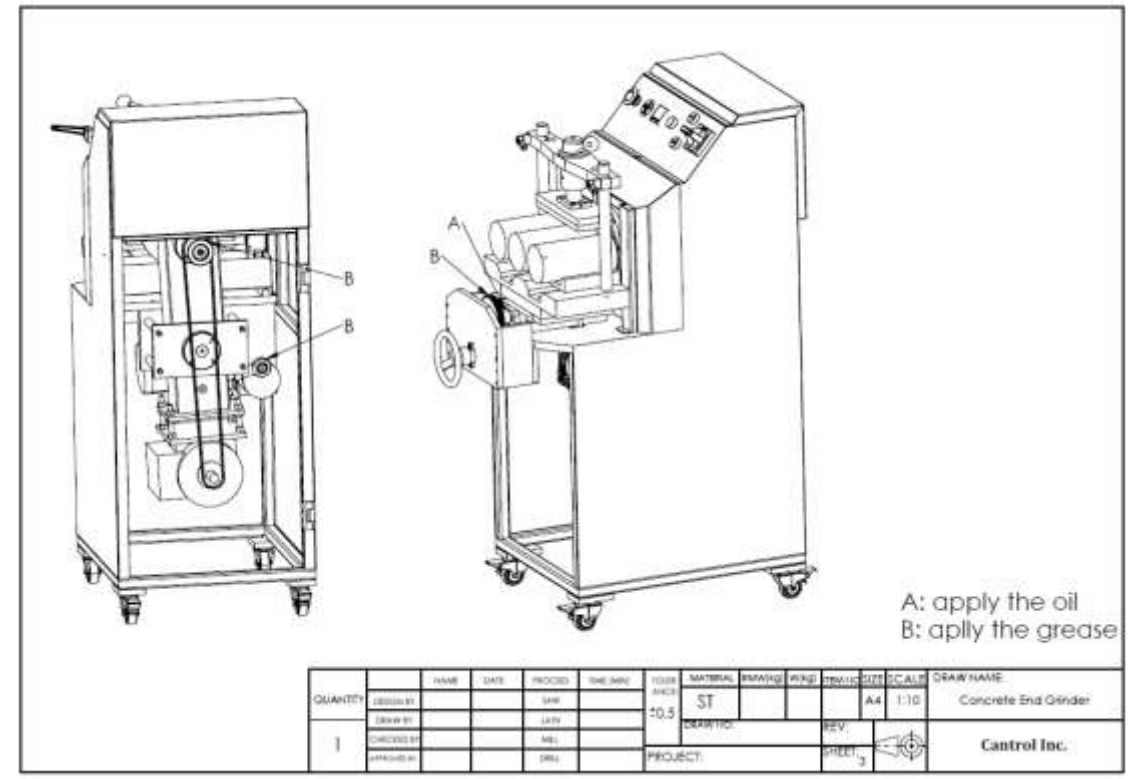
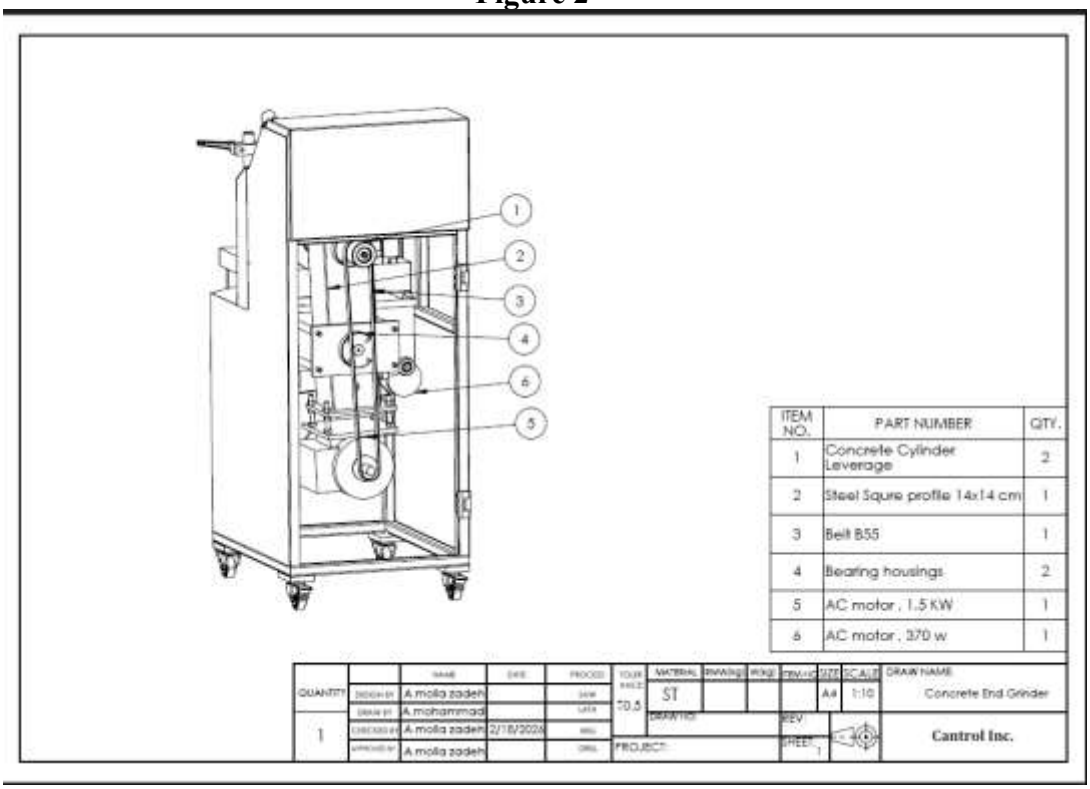

A
B
B
B
A: apply the oil
B: aplly the grease
QUANTITY
1
ST
A4
1:10
Concrete End Grinder
Cantrol Inc.

Figure 2


1
2
3
4
6
5
ITEM NO.
PART NUMBER
QTY.
1 Concrete Cylinder Leverage 2
2 Steel Squre profile 14x14 cm 1
3 Belt B55 1
4 Bearing housings 2
5 AC motor , 1.5 KW 1
6 AC motor , 370 w 1
QUANTITY
1
A molla zadeh
A mohammad
A molla zadeh 2/18/2020
A molla zadeh
ST
A4
1:10
Concrete End Grinder
Cantrol Inc.

4- How to install the end grinder properly

- Install the machine in the proper place, level and lock the front two casters.
- Plug the machine`s wire to nearest outlet. Be sure that the outlet supports 110V, 60Hz., 1 ph., 20 A.
- Connect the water supply to your water tape of laboratory.
- Connect and fasten the outlet hose (size 1-1/4") for drainage.

4- Prepare the machine before grinding the samples

- There are two aluminum holder plates for 4 inches (12) and plate for 6 inches (13). Plate 11 is used when you want to grind 3" & 4" cylinder samples and cores and plate is for 6" cylinder samples and cores. plate 4" should be removed from sliding feeder, there is not any bolts between plate 12 and 13, just push up plate 12 upward, the plate 12 will easily be separated.
- The presser (holder) of samples is easily adjustable. For adjusting the height of presser (and polyurethane pad), turn the crossbeam locker leverages anticlockwise, so the cross beam can be slid on two columns up and down. If you turn the concrete holder lever (8) left or right, the polyurethane pad will go up and down 6-8 mm approximately, which is enough to insert the samples into feeder carriage and fasten them.

5- How to insert the samples into feeder

- Make sure the Grinding Disc stand in the middle of swings path after each cycle of operations.

- After selecting size of samples and inserting them into carriage, first, the samples should be pushed towards the grinding disc, so the samples must touch the disc, now fasten the samples by cross beam lever down. Make sure the samples are fitted and secured in their position. (in some cases, if the diameter of samples differences were more than 2 mm, the fastening of sample may be improperly being done). Because of unexpected accidents and collision between end of samples and disc, a maximum of one mm is needed before starting to grind the backward the feeder about 1mm, this helps us with any unexpected collision and damaging to technician and the machine.
- There are three feeding speeds options (2) for grinding the samples, A- 0.5mm/min, B-1 mm/min, and C- 1.5 mm/min. Based on the strength of concrete or diameter, choose the best feeding speed, more strength and big diameters need less speed (0.5 mm/min recommended mostly).

- Before grinding, set the processing grinding time, normally 1.5-2.5 minutes is enough to have best result of cylinder ends.

6- Starting machine for grinding process

- Now the machine is ready to run. Turn machine on by pressing the green "Power On" button (6) first. It may also be necessary to twist the red button (Emergency) slightly to release it.
- The disc rotates anticlockwise and swings all its path, during grinding, please check if the water is pouring down to Disc and samples. The water flow is adjustable. There is a ¼ inch at water intel, by turning the handle of valve to right or left the amount of water will be changed. The water will be poured when the Grinder stared each time.
- Now turn the handy wheel (15) to right to approach the samples to disc. When the sound of grinding is heard, push the wheel forward to engage the gears, release the wheel to make process of grinding per selected feeder continue.
- After the grinding cycle is completed and the red light has been turned off, the feeder carriage (13) will be back to its initial position (the yellow light will be on).
- unlock the crossbeam lever and remove the samples from carriage.
- Inspect the ground end of each cylinder or core. If the freshly ground end does not have aggregate that is uniformly visible over the entire surface, the grinding cycle may need to be repeated on that end. If so, repeat the necessary steps.
- Be informed that the Grinder can be turned on when the carriage returns to its initial position.

- For the first time, we recommend running Grinder without samples!!

7. End Grinder Maintenance and Lubrication Manual

Cleaning of the machine after grinding completion

- **It is important to clean the machine after daily use, as deposits will build up inside the grinding disc enclosure. The grinder disc may build up deposits and cause vibration due to imbalance.**
- **The returned and used water will go to the drainage reservoir which customers build in ground and must be cleaned based on the usage quantity of cylinders.**
- **The pouring water drops down from top of the grinder disc should be checked out to be opened.**
- **Check out the tightness of V-Belt of motor and the weariness if the vibration and the sound increase, in case, v-belt need to be changed.**

- **There are five spots that should be greased and oiled. The A spots should be oiled(30-40W) grade each month, and the B spots need to be greased (NLGI grade 2-3, (265-295 soft grease)- (220-250 semi-solid) every three months.**
- **If you don’t need to use the machine, turn off the main switch first, then dry off the water or moisture around the carriage.**

8. Troubleshooting

Q- The machine doesn't start.

A- The Emergency button is off and should be release slightly or because of overload on main motor while the disc engaged with one of samples and stopped, check and try first the electrical overload switch (20A) which is located on left hand side of grinder and should be push in after 30 second or another electric breaking switch (miniature overload switch, 25 A which is located into the back of electric box (open the steel cover of electric component), turn lever ON the Switch.

8- Troubleshooting

Q-The feeder doesn't move forward to grind the samples.

A- The selecting key is off or feeding wheel didn't push to engage with automatic feeding gear. In some cases, the carriage moves toward and touches the limit switch, so backward the carriage by handy feeder wheel to initial position.

Q- The grinder disc does not grind well or is not efficient enough. Grinder disc life is over.

A-Change the disc with a new one.

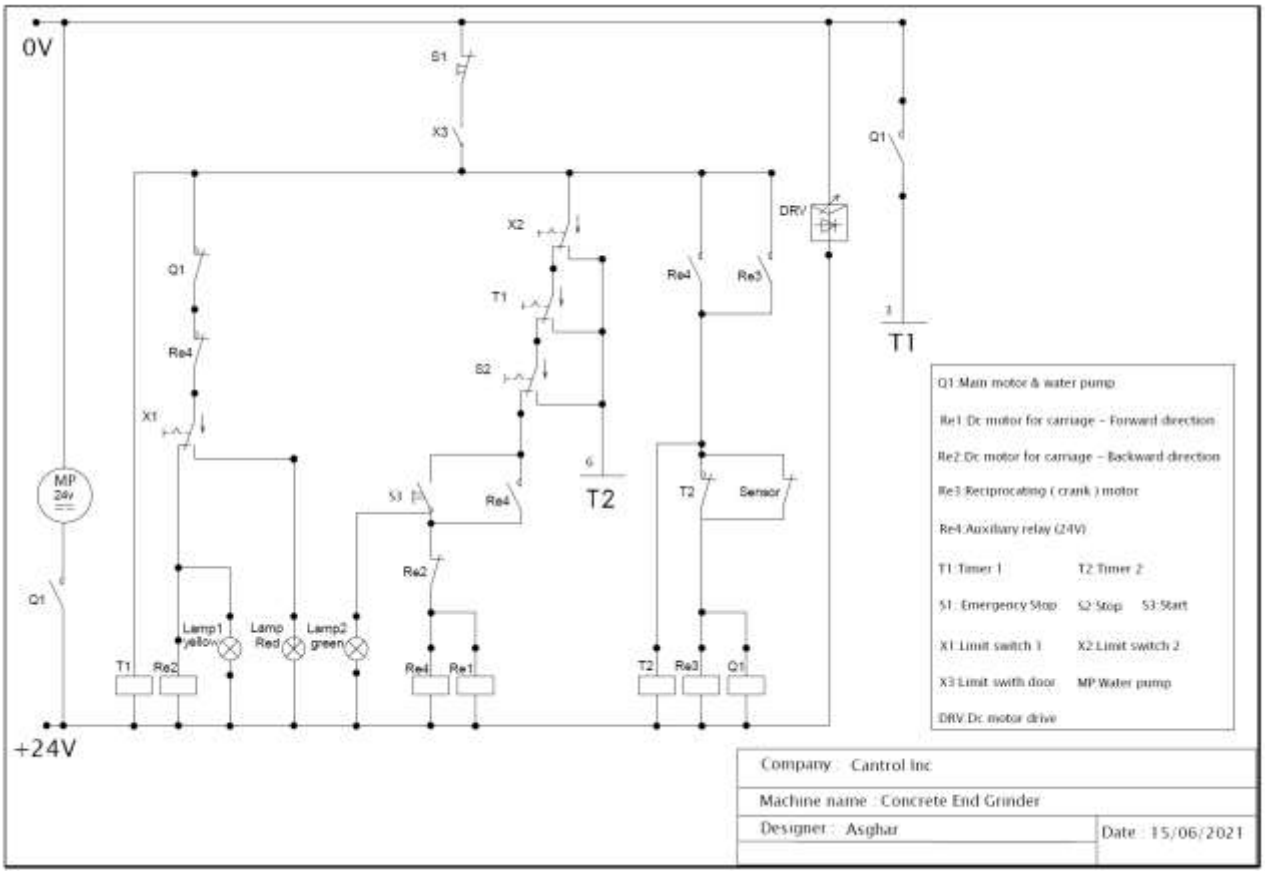
Q- The cooling water does not come down to drainage tank.

A-The outlet drainage of grinding housing clogged by concrete particles, so clean the drainage and remove particles.

9. Service Life

1- Check the weariness of V-Belt of motor and the normal tension of it.
2- Check the life age span of the grinding disc if it needs to be changed with new one.
3- Clean the grinding hosing for any clogs and concrete particles debris.
4- Check if the machine is at its level.

10- Electric Circuit Diagram


0V
+24V
S1
X3
Q1
DRV
X2
Re4
Re3
T1
S2
X1
MP
24v
S3
T2
Sensor
Re2
Lamp1
yellow
Lamp
Red
Lamp2
green
Re1
Q1 :Main motor & water pump
Re1 :Dc motor for carriage – Forward direction
Re2 :Dc motor for carriage – Backward direction
Re3 :Reciprocating (crank) motor
Re4 :Auxiliary relay (24V)
T1 :Timer 1
T2 :Timer 2
S1 : Emergency Stop
S2 :Stop
S3 :Start
X1 :Limit switch 1
X2 :Limit switch 2
X3 :Limit swith door
MP :Water pump
DRV :Dc motor drive
Company : Cantrol Inc
Machine name : Concrete End Grinder
Designer : Asghar
Date : 15/06/2021