



CE-100 Groove Auger Conveyor



Operation and Maintenance Manual

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I. Working Principle

This machine is designed according to the following principle.

When the auger is revolving, the gravity of material from the hopper bin feeds the push function of the auger leaf's slice. The material in the hopper is moving ahead in opposite direction with the tube and auger.

II. Features and Scope of Application

The auger conveyor is a transportation that widely used in dairy, food, veterinary, medical and chemical industries. It's mainly used in transporting powdery, small block and granular material, and is not suited for perishable, viscosity and caking material.

The suitable environment temperature is from -20°C to 40°C , and the material temperature should be below 200°C with the transportation length less than 20m.

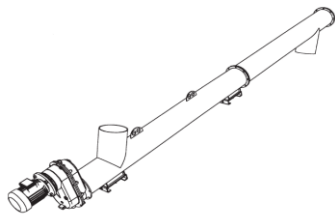
Compared with other transportation equipment the auger conveyor is simple in structure with a small cross section. It can operate safely with loading and unloading of porous material.

CAUTION: With a low throughput but large power consumption of the machine, the material is easily broken in the course of transmission.

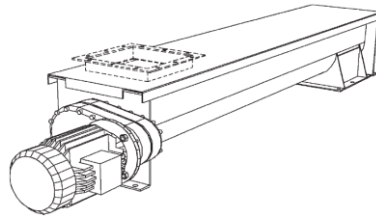
III. Structural Characteristics and Layout

Auger conveyor is composed of spiral machine, material inlet, material outlet and driven device. The spiral machine has head bearings, tail bearings, hanging bearings, spiral shell, covers and the base etc. parts, and the driven device is composed of motor, speed reducer, coupling part and motherboard.

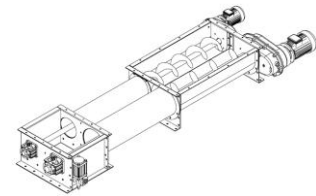
According to the usage occasions, there are several forms auger conveyor (Fig)



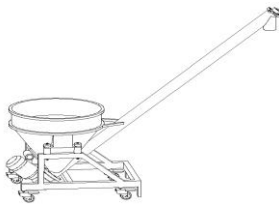
A Tubelike auger conveyor



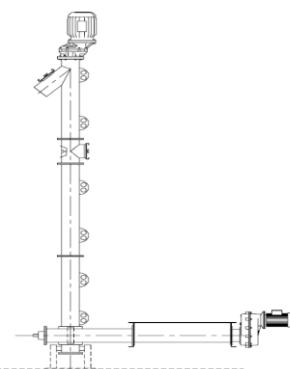
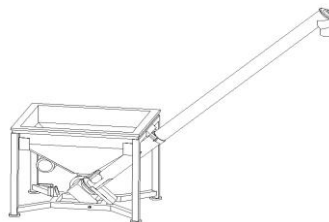
B Troughlike auger conveyor



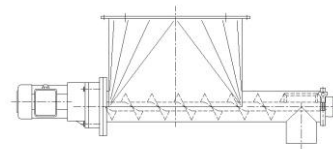
C Removable auger feeder



D Tubelike with hopper auger conveyor



E Vertical auger conveyor



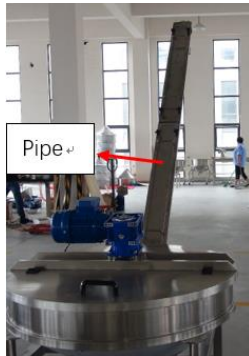
F Tank dedicated feeder

IV. Spiral Specifications and Capacity

Auger Diameter, mm	80	100	130	150	200	250	300	400	500
Pitch, mm	65	80	100	120	160	200	240	320	400
Screw Speed, r/min	140	140	140	110	100	90	80	70	60
Throughput, m ³ /h	1.5	3	4.5	6	12	22	34	64	100

V. Machine Installation:

Step 1: put the powder transferring pipe on the machine, see below photo:



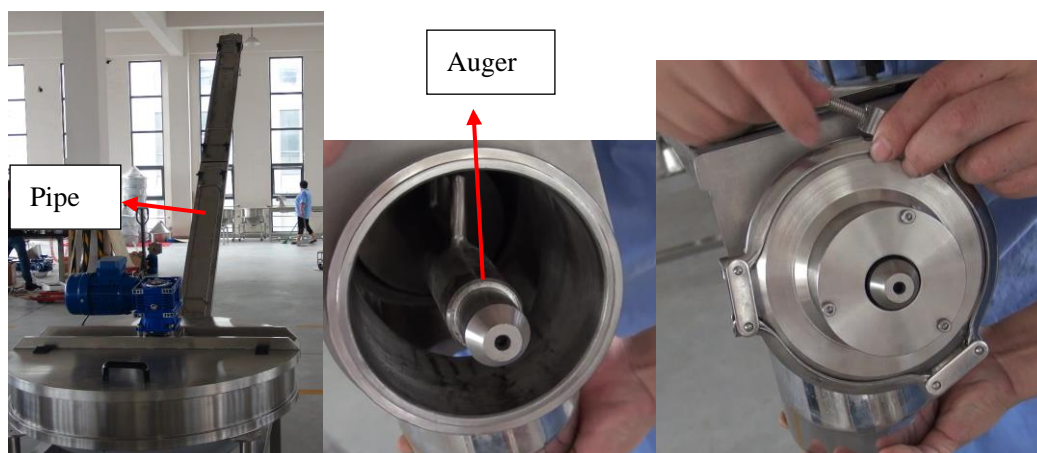
Step 2: Plug the lower motor by the below circled part.



Step 3: Fasten the motor on the machine by the circled screw. And connect the motor wire to power supply.



Step 4: After the motor is assembled, then put the auger inside the pipe, and put on the cover and fasten by clamping band.



VI. Machine Control Panel Introduction



1. “Vibrating” switch is to turn on or off the vibration function.
2. The “CW/CCW” switch, is auger feeding switch.
 - a. CW stands for clockwise auger feeding,
 - b. CCW is counter clockwise auger feeding,
 - c. middle position of the switch is to stop auger feeding.
3. “OFF/ON” switch is the power switch to turn the power on or off.

VII. Machine Operation Method

Step 1: Turn the power switch to ON. See below photo.



Step 2: Turn on the auger feeding switch, the auger feeding speed is adjustable at the inverter inside the electrical box, see below photo:



VIII. Introduction

1. Parameters and appearance plans

- 1) Conveyor capacity: 3m³/h
- 2) Hopper size: 230L
- 3) Power supply: 220V or 380V 3-phase
- 4) Total power: driven motor 1100W; vibration motor 68W

2. Description

- 1) This machine meets GMP standard and is designed according to the customer options.
- 2) For cleaning efficiency, the motor installation foundation has a hinge structure on one side and is fixed by hoop on the other side to open the spiral tube bottom without tool. Once opened, the auger is visible and can be removed from this location. The screw bottom is also fixed by hoop, and can be quickly dismantled for cleaning.
- 3) To avoid arching of the material which is not free flowing, there is an added Italian breaking arch vibration motor on hopper, this motor has a long service life and high efficiency. The amplitude of vibration is adjustable.
- 4) The conveyor's structure is easily portable, to meet a variety of usage requirements and enhance the production efficiency.
- 5) Depending on usage requirements you can add sensor and intelligence control circuit, for controlling the material in hopper, feeding material automatically and alarm for overloading etc.

3. Operation and maintenance

Pre-examination and preparation

- 1) Check the power supply whether it meets the requirements of voltage, whether the wiring is safety and strong enough, whether connected to earth.
- 2) Check if the connection section is normal, whether the auger and terminal cover are in the position.
- 3) Make the motor be no-load running for 5-10minutes, then check if there is something abnormal, for example the motor and auger have abnormal voice, the machine rocks.
- 4) Check if the speed reducer leaks oil.
- 5) If the conveyor's hopper has the vibration breaking arch device, check the vibration motor installation to ensure it is fixed to the smooth panel, and the panel should not have pore or crack. When the vibration motor is installed more than one meter high from ground, the motor needs to be fixed with hinge to avoid damage or safety injury if the four bottom cape studs fail.

4. Clean Up Residual Material and Dismantling Auger

Operation sequence:

- 1) Place a pan for catching material
- 2) Open the material outlet
- 3) Start up the spiral turning in reverse switch
- 4) When the residual material has been fed out, stop the machine
- 5) Put the spiral tube in level
- 6) Dismantle terminal cover or the stud
- 7) Remove the terminal cover
- 8) Remove the auger.

5. Worm Speed Reducer

- 1) Keep worm speed reducer's surface clean, so it is easy to spread heat. If you find the temperature is over standard, please check the quantity of oil and the oiliness. (loading temperature $\leq 60^{\circ}\text{C}$, the highest temperature of machine surface $\leq 96^{\circ}\text{C}$)

- 2) NMRV worm speed reducer is completely sealed, it does not need lubricant replacement.

NOTE: If there is a need to lubricate; use **TIVELA OIL SC320**; **GLYGO-YLE30**. To avoid any chemical reaction, use on the recommended brand lubrication.

- 3) When the rubber sealing parts begin to leak oil, replace rubber seals. Avoid using the machine without oil or lack oil.
- 4) If an abnormality occurs in the machine, stop and check it immediately. To avoid damage, do not pound on auger.

6. Gear Reducer Maintenance

- 1) Check for breakage on the reducer prior to use, make sure there is no leaking oil.
- 2) Ensure the correct voltage of reducer, you can add voltage stabilization if it is not stable.
- 3) Make sure that the machine's foundation is fixed and secure when operating to prevent any movement from vibration.
- 4) The lubricate butter is installed at the factory into the reducer, and does not need replacement for 12000 hours.
- 5) When the reducer is revolving, the current cannot exceed what is marked on the data plate.
- 6) Pay attention to peripheral temperature, boiling point, sour and alkali etc.
- 7) Improper installation, maintenance and operation may damage the reducer.
- 8) Be sure that the power supply is **OFF** when repairing or dismantling the reducer.
- 9) For operating safely make sure that the safe device has been installed
- 10) After all accessories and gearing parts are fixed well, you can start up the reducer.
- 11) If the reducer is revolving in a low speed with frequency transformer add assistant cooling fan independently.
- 12) When the 1-phase reducer is powered off there are still some charges in the capacitor please connect the circuit terminal to the ground.

7. The usage and maintenance of vibration motor

VIII. Dimension Diagram

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