TSCY Series

Single-Deck Drum Pre-cleaner

User Manual

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Ⅰ. General Introduction

The TSCY single drum pre-cleaner is used for grain and oil-seed processing industries. It is generally used for preliminary cleaning to remove large impurity particles such as wheat straw, twine, stalk, pods, sticks, stones, and clumps effectively. It has been widely used for feed mills, rice mills, flour mills, oil-seed processing facilties, ethanol facilities, etc.

It has single cylinder screen drum at an adjustable inclined angle. This angle can be adjusted to accomodate required capacity and processing by regulating the speed that the materials move through the drum.

The TSCY drum pre-cleaner is a robust and practical piece of equipment that offers a clean appearance, simple operation, and easy maintenance. This quiet and smooth machine provides efficient, high-capacity cleaning at low power consumption and when properly operated and maintained will provide you with years of trouble-free service.

Ⅱ. Main Parameters

Table 1

Model / Parameter	TSCY 85/100	TSCY 100/125	TSCY 125/150	TSCY 125/250	TSCY 125/320
RPM (r/min)	17	17	15	15	15
Power (kw)	1.5	2.2	2.2	2.2	3
Air Sucking Volume (m^3/h)	980	1380	1820	2250	2680
Sieve model(mm)	Φ850X1050	Φ1000X1250	Φ1250X1500	Φ1250X2500	Φ1250X3200

Table 2

Material \ Parameter \ Capacity(T/h) \ Model			TSCY 85/100	TSCY 100/125	TSCY 125/150	TSCY 125/250	TSCY 125/320
Wheat	Mesh Dia. (mm)	Φ24	20~90	40~130	50~190	80~220	100~240
		Φ20					
		Φ18					
Corn	Mesh Dia. (mm)	Φ28	20~100	50~150	60~200	100~240	120~260
		Φ24					
		Φ20					
Soybean	Mesh Dia. (mm)	Φ24	20~120	60~200	70~220	120~260	140~300
		Φ22					
		Φ20					
		Φ18					
Paddy Rice	Mesh Dia. (mm)	Φ24	10~40	30~90	40~140	60~160	80~180
		Φ20					
		Φ18					

III. Main Structure

The main components of the TSCY series drum pre-cleaner includes the powertrain, the machine body, the drum with sieve, and the dust removal mechanism.

1. Powertrain

The powertrain consists of a speed reducer, sprockets and chain, a cross-shaft universal coupler, drum, and support rollers. The support rollers are installed on an adjustable support framework on one side to support the screen drum and adjust the incline. The other side is connected to the cross-shaft universal coupler to adjust the incline of the screen drum.

2. Screen drum

The screen drum consists of the frame, the screen, and guid flighting. The screen is perforated with opening size(s) to suit the materials processed. The guide flighting is laser cut and bolted on the frame. The screen drum is driven through a universal coupling joiner and supported by two rollers. The incline angle of the screen drum can be adjusted by changing the distance of two rollers.

3. Body of machine

The single drum pre-cleaner body consists of the frame, side, and end sealing doors. The frame is welded using high-grade steel, one of its middle pillars is bolted to allow for easy disassembly of the screen drum. The side and end sealing doors are fabricated with high grade steel. The whole body is solid with good sealing performance.

4. Screen cleaning mechanism

The screen cleaning mechanism consists of a rectangle brush and brush frame. The brush is durable and can efficiently clear the materials and impurities blocked in the mesh of the screen drum.

5. Dust removal mechanism

The dust removal mechanism is located at the middle of the top cover of the machine body. It is used to aspirate the dust and very light impurities in the machine.

Ⅳ. Operating Principles and Processes

1. Operating principles

The TSCY drum pre-cleaner separates the coarse impurities bigger than the screen mesh size by utilizing the difference in the size of grain and impurity particles. The material gets into the drum from the grain inlet and falls onto the drum screen. Through the continuous rotation of the drum, the larger impurity particles (such as straw, twine, stalk, pods, sticks, stones, and clumps) will be separated and guided to the trash outlet. The grain will pass through the screen and flow to the grain outlet.

Ⅴ. Installation

1. Check to see if any parts of the machine were damaged or came loose during transport. Also check the gearbox for proper oil level and all rotating parts for proper lubrication.

2. Foundation requirement. The location tolerances are ±2 mm in any horizontal direction, and ±1 mm vertically.

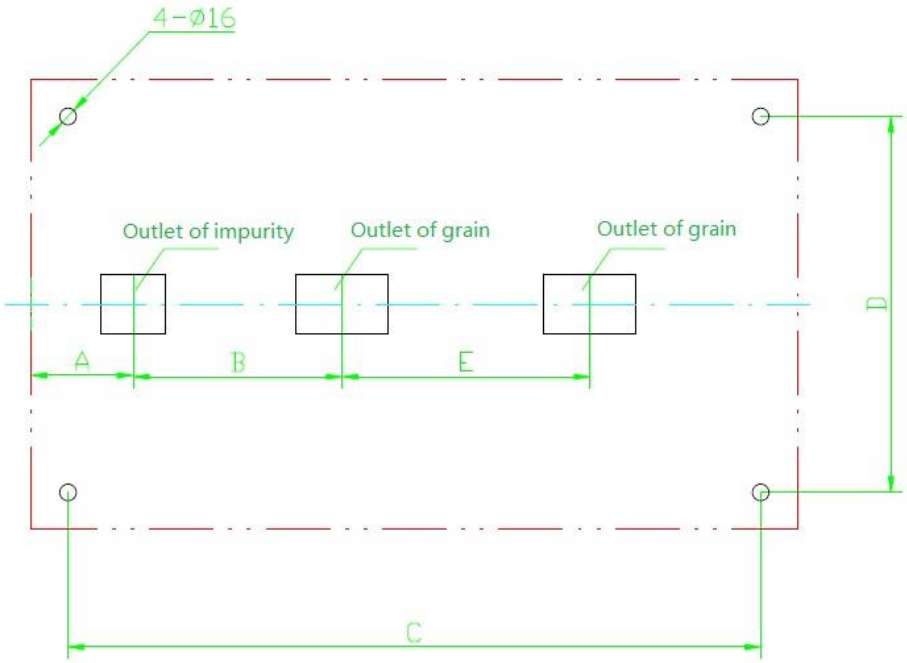
3. To maintain easy operation and maintenance, sufficient space should be provided around the machine (approx. 1.8m on bolted shell side).

4. Set the machine onto the supporting surface and check for level and plumb.

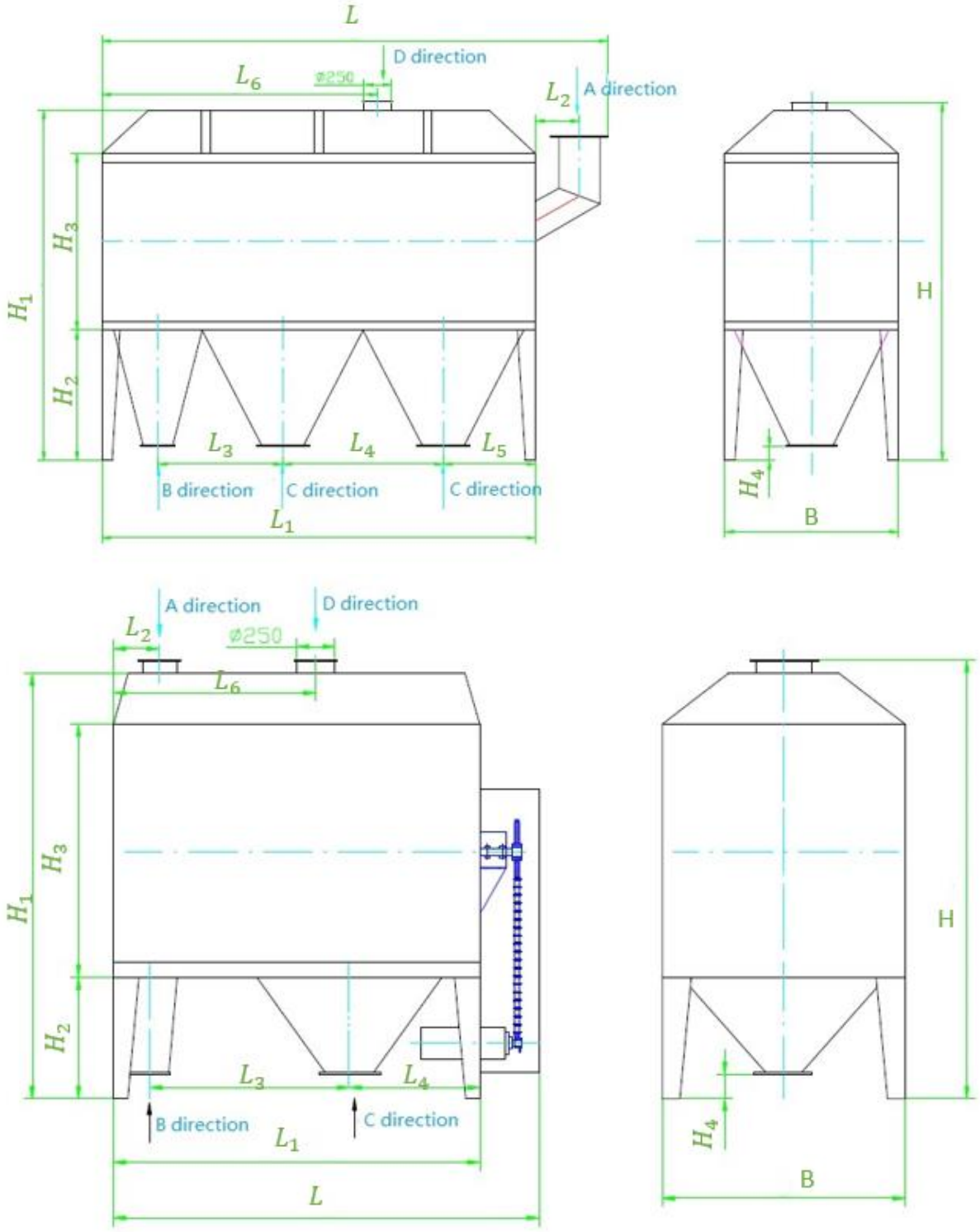
5. Rubber vibration isolation rubber pads are recommended between the cleaner and the support structure to reduce vibrations.

Ⅵ. Installation Dimensions

The installation dimensions of the TSCY single drum pre-cleaner are shown on the following drawings and tables.

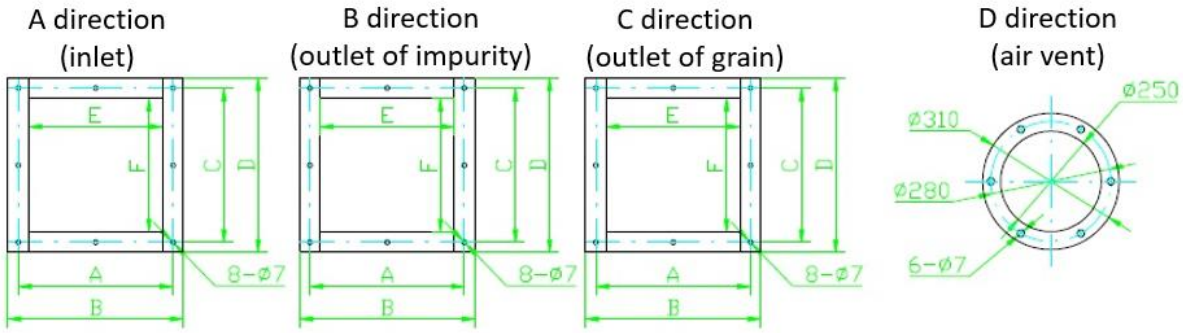


	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
TSCY 85/100	290	600	1500	930	
TSCY 100/125	250	700	1680	1070	
TSCY 125/150	300	900	2020	1320	
TSCY 125/250	340	965	3170	1320	1310
TSCY 125/320	340	1140	3870	1320	1660



Model / Value(mm) / Parameter	TSCY 85/100	TSCY 100/125	TSCY 125/150	TSCY 125/250	TSCY 125/320
L	1920	2110	2450	3660	4360
B	1050	1200	1450	1450	1450
H	1980	2160	2440	2670	2670
L_1	1620	1810	2150	3300	4000
L_2	250	250	300	200	200
L_3	600	700	900	965	1140
L_4	730	860	950	1310	1660

L_5				680	860
L_6	850	920	1100	1600	1950
H_1	1920	2100	2370	2600	2600
H_2	600	600	600	700	700
H_3	1070	1250	1520	1540	1540
H_4	150	150	150	150	150



A direction dimension table

	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)
TSCY 85/100	230	260	230	260	200	200
TSCY 100/125	270	300	270	300	240	240
TSCY 125/150	330	360	280	310	300	250
TSCY 125/250	330	360	390	420	300	360
TSCY 125/320	330	360	390	420	300	360

B direction dimension table

	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)
TSCY 85/100	230	260	230	260	270	200
TSCY 100/125	230	260	270	300	270	240
TSCY 125/150	230	260	270	300	270	240

TSCY 125/250	230	260	330	360	270	300
TSCY 125/320	230	260	330	360	270	300

C direction dimension table

	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)
TSCY 85/100	230	260	230	260	200	200
TSCY 100/125	270	300	270	300	240	240
TSCY 125/150	270	300	270	300	240	240
TSCY 125/250	330	360	330	360	300	300
TSCY 125/320	330	360	330	360	300	300

Ⅶ. Operation and Maintenance

1. Before initial startup, check that all fasteners are tightly secured, all safety guards are in place, and all required components are lubricated.
2. On initial startup, ensure the proper rotation direction of the drum and aspiration fan.
3. The drum rotation direction should match the internal direction arrows indicated on the machine. Operating in the wrong rotation direction may damage the sieve cleaning mechanism.
4. The machine should be test run empty for one to two hours to ensure there are no abnormalities in temperature and noise before running with material.
5. Prior to running material, adjust the screen cleaning brush to ensure that it is engaging the mesh. If it is not engaging properly, it shall be adjusted accordingly.
6. Regularly inspect all parts seeing frequent rotation and heavy load. Always inspect the machine if abnormal operation or results occur.
7. A routine maintenance check of the machine should be done. The

universal adjusting mechanism requires calcium grease quarterly; speed reducer and fan should be used and maintained in line with the supplier's instructions. Other rotating parts should be lubricated once every half year.

Ⅷ. Trouble shooting

Problem	Possible Reason	Solution
Bad cleaning quality	▪ The sieve is broken ▪ Feeding is too fast ▪ Size of sieve and holes do not match ▪ Incline is too high	▪ Change or repair the sieve ▪ Reduce the feeding speed ▪ Replace with the correct sieve ▪ Reduce incline angle
Below capacity	▪ Slow feeding ▪ Holes of sieve are blocked ▪ Rotation speed is low ▪ Inclination of drum is too small	▪ Increase feeding speed ▪ Check the brush ▪ Check the transmission system ▪ Increase the drum angle
Noise and vibration	▪ No or inadequate lubrication on bearings ▪ Bolts are loose	▪ Lubricate bearings ▪ Check and tighten the bolts
Cannot start	▪ Material stuck in the drum ▪ Electrical problem	▪ Clean the drum ▪ Check electrical connections.
Overheating bearings	▪ No or inadequate lubrication on bearings	▪ Lubricate bearings