

SCREW CONVEYOR



EVER LUCKY MACHINERY

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Tubular Screw Conveyor

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Trough Screw Conveyor

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01 Tubular Screw Conveyor Benefit ▼

Tubular screw conveyors and feeders have a wide range of applications in powder and granular material handling. Depending on the material being transported, different types of conveyors and feeders can be selected, for example: concrete products (cement, fly ash, filler dust, dust), bituminous products (hot and cold process dust), building ready-mix materials (Dried lime, sand, cement, fillers), glass technology (limestone, soda ash, sand, etc.), foundry (sand, bentonite), etc.

Inclined tubular screw conveyors typically operate from slightly above the horizontal position to 45-degrees from the horizontal position. Above 45-degrees an inclined screw conveyor is considered a vertical screw conveyor. As the degree of incline increases, conveying efficiency is reduced and horsepower requirements increase due to the effects of gravity and bulk material fall back. JY recommends designing screw conveyors using the lowest possible degree of incline for maximum efficiency.



01 Tubular Screw Conveyor Technical Features ▼

- Manufacturing:mild steel ,SS 304/316L
- Helical blades welded onto the central tube
- Inlet/outlet opening :from $\phi 114$ to $\phi 660$ mm
- Maximum slope: 40° (depends on the load rate of the screw)
- Engine:electric 230v/380v/400v/415v/480v 50/60HZ
- Length:1-13 meters

Model number			LSY140	LSY160	LSY200	LSY250	LSY300	LSY400
Screw diameter (mm)			140	163	187	238	290	365
Rotating speed (r/min)			300	300	260	200	175/300	175
Outer diameter (mm)			168	194	219	273	325	402
Max length (m)			11	12	13	16	18	18
Incline degree (α°)			$0^{\circ}\sim 60^{\circ}$	$0^{\circ}\sim 60^{\circ}$	$0^{\circ}\sim 60^{\circ}$	$0^{\circ}\sim 60^{\circ}$	$0^{\circ}\sim 55^{\circ}$	$0^{\circ}\sim 55^{\circ}$
Conveying capacity (t/h)			17-9	30-20	50-32	70-53	82-60/120-85	140-110
Motor	Model	L $\leq$ 7	Y132S-4	Y132S-4	Y132M-4	Y160L-6	Y180M-4	Y180M-4
	Power (kw)		5.5	5.5	7.5	11	18.5	18.5
	Model	L $>$ 7	Y132S-4	Y132M-4	Y160M-4	Y180L-6	Y180L-4	Y180L-4
	Power (kw)		5.5	7.5	11	15	22	22



01 Tubular Screw Conveyor Detailed Design ▼

1. Possible Transmissions

Motor can be mounted for pulled or pushed operation.



Gearmotor
direct coupling

Sprocket chain
drive

Pulley/belt transmission

2. Intermediate bearings or shaft oversizing



The setting up of intermediate bearings enables the design of very long screws with a single engine.



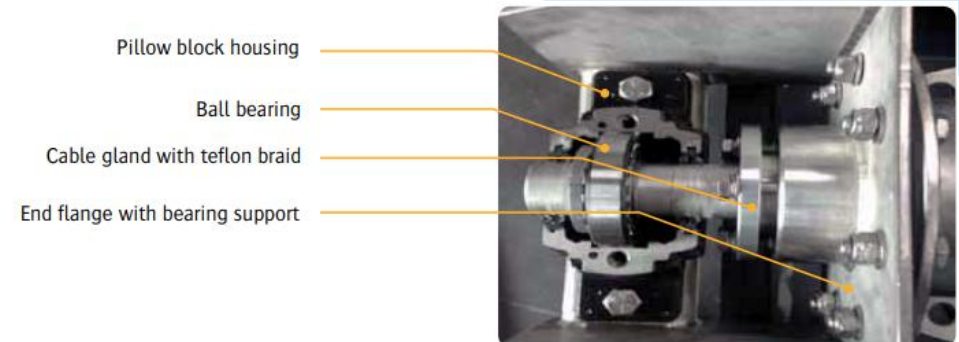
The screws having an oversized shaft diameter do not require intermediate bearings and have significant conveying distance. For abrasive materials, alternative to the intermediate bearings is shaft oversizing.

3. Two Types of Bearings

Depending on the type of the handled materials, the bearings can be flanged or detached.



Detached Bearing-Detailed Design



02 Trough Screw Conveyor Technical Features ▼

Trough Screw Conveyor has a U or V-shaped trough equipped with at least one outlet spout, an end plate at each trough end, helicoid screw flighting welded on a centre pipe with coupling bush at each end, two end bearing assemblies complete with shaft seal, a certain number of intermediate hanger bearings depending on the overall length of the screw conveyor, and bolted trough cover sections.

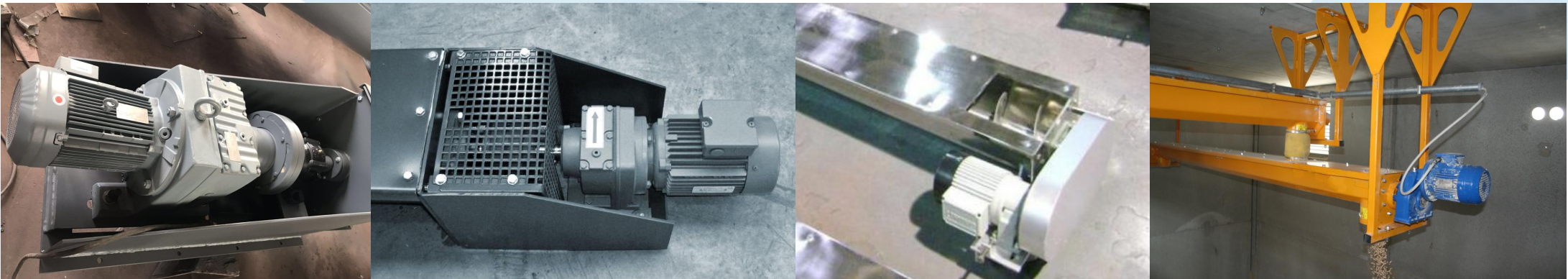
- Trough screw diameters of 150, 200, 250, 300, 350, 400, 500 and 600mm.
- Multi-inlet and outlet options including spigot, round and square flanges and universal.
- Standard or custom built screw conveyors including options for multiple inlets and outlets, liners and wear bars, reversible operation and with inspection hatches as required.
- Shaft or Shaftless options available for flights.
- Throughputs of up to 100m³ / hr.



LS type	100	160	200	250	315	400	500	630	800	1000	1250
GX type			200	250	300	400	500				
Screw diameter(mm)	100	160	200	250	315	400	500	630	800	1000	1250
Screw pitch(mm)	100	160	200	250	315	355	400	450	500	560	630
Rotating speed(r/min)	140	120	90	90	75	75	60	60	45	35	30
Conveying capacity $Q\Phi=0.33$ (m ³ /h)	2.2	7.6	11	22	36.4	66.1	93.1	160	223	304	458
Power Pd 1=10m(KW)	1.1	1.5	2.2	2.4	3.2	5.1	4.1	8.6	12	16	24.4
Power Pd 1=30m(KW)	1.6	2.8	3.2	5.3	8.4	11	15.3	25.9	36	48	73.3
Rotating speed(r/min)	120	90	75	75	60	60	45	45	35	30	20

02 Trough Screw Conveyor Detailed Design ▼

- Trough in standard length modular flanged sections
- Powder-coated
- Flanged end bearing assemblies protected against material infiltration by shaft seals
- Robust cast iron body flanged end bearing assemblies with externally positioned bearings and manually adjustable packed gland seals
- Drive units mounted at inlet or outlet end:
 - Bare shaft
 - Direct compact gear motor drive
 - Direct gear motor drive with elastic coupling
 - Offset gear motor drive with chain transmission
 - Offset drive with belt transmission



Shaftless Spiral Conveyors

Problem-free conveying of difficult materials ▼

Shaftless Screw or Spiral Conveyors are an alternative concept to traditional shafted screw conveyors. Material is conveyed by an extra heavy-duty shaftless screw that slides on a wear-resistant, low-friction liner inside the conveyor trough housing.

Bulk materials discharged from centrifuges, filter presses or mixers can easily be conveyed using a JY Shaft less Screw Conveyor. Our shaft less design provides a non-clogging conveying surface that allows difficult-to-convey materials to become easy-to-convey. The perfect solution for handling bulk materials with high moisture content is the JY Shaft less Screw Conveyor.



03 Shaftless Spiral Conveyors

Technical Features ▼

- Throughput rates: up to 45 m³/h (26.4 cfm) for sludge;
up to 22 m³/h (12.9 cfm) for screenings
- Drive power: 0.55 kW (0.75 HP) ~ 9.2 kW (12.34 HP)
- Trough and spiral manufactured from carbon steel or 304L / 316L SS
- Wide range of bottom trough liners

Model			WLS150	WLS200	WLS250	WLS300	WLS400	WLS500
Number								
Spiral diameter (mm)			150	184	237	284	365	470
Outer diameter (mm)			180	219	273	351	402	500
Incline degree (α)			0°~30°	0°~30°	0°~30°	0°~30°	0°~30°	0°~30°
Max Length (m)			12	13	16	18	22	25
Capacity (t/h)			2.4	7	9	13	18	28
Motor	Model	L ≤ 7	Y90L-4	Y100L1-4	Y100L2-4	Y132S-4	Y160M-4	Y160M-4
	Power kW		1.5	2.2	3	5.5	11	11
	Model	L > 7	Y100L1-4	Y100L2-4	Y112M-4	Y132M-4	Y160L-4	Y160L-4
	Power kW		2.2	3	4	7.5	15	15

03 Shaftless Spiral Conveyors Trough and Liner Configuration ▼



HDPE Integral Trough

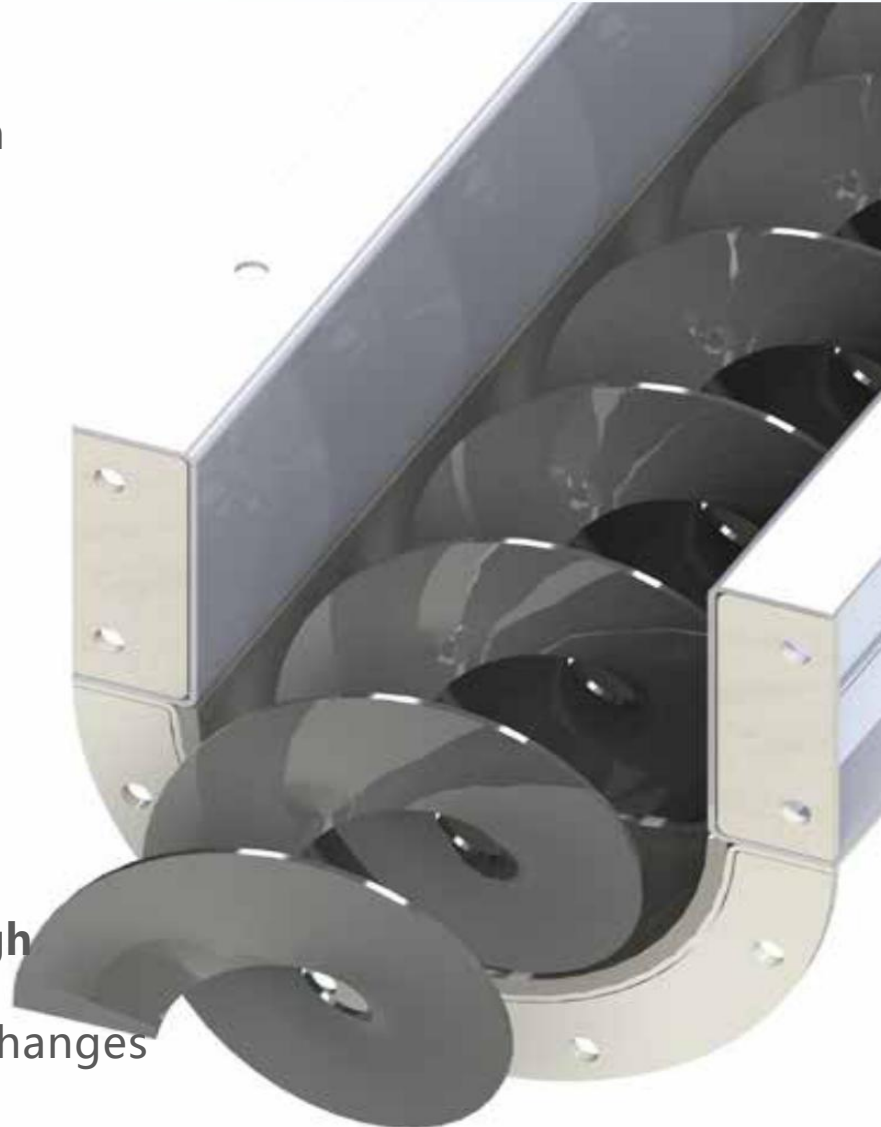


Wear plates 6-12mm thickness



**2 Colours Integral Trough
OPTION**

Replace liner when it changes colour to green



03 Shaftless Spiral Conveyors Application ▼

Shaftless Screw (Spiral) Conveyors are specially designed for handling difficult, heterogeneous materials such as urban solid waste, screenings and floating matter, dewatered, thickened, conditioned sludge, packaged food, creams or pastes, as well as waste from: meat, fish, fruit and vegetable processing. The main sectors of application are: waste water treatment, sugarhouse rejects, fish industry, solid waste treatment, fruit and vegetable processing, beverage industry, pulp and paper, chemicals, food industry in general, meat processing plants, abattoirs/ slaughterhouses, restaurants, canteens, catering in general.



Heat Transfer Screw Conveyor Hollow Flight Design ▼

Our heating and cooling screw conveyors indirectly transfer heat to or from the product by introducing a heat transfer medium such as cool water, hot oil or steam through a special trough jacket and/or the pipe and hollow flights of the screw conveyor. Achieving the specified exit temperature of the product is accomplished by calculating the surface area of the auger and designing the system flow to match the heat load requirements of the application.

A properly designed system will be very cost-effective when compared to other heating and cooling screw conveyors. Ever Lucky Machinery designs and manufactures heating and cooling auger conveyors to meet the needs of many industries, such as Chemical, Minerals Processing, Food, Power and Wastewater Treatment.

Heat Transfer Screw Conveyors are referred to by many different names

- Ash Coolers
- Fly Ash Screw Conveyors
- Thermal Screw Conveyors
- Screw Conveyor Cooler
- Screw Heat Exchangers
- Cooling Screw Conveyors
- Hollow Flight Screws
- Heating Augers
- Cooling Augers





HEAT TRANSFER SCREW

Hollow Flight Design
Die Formed Flights
Up to 27' Length, 30" Dia.



Heat Transfer Screw

Screw conveyors are commonly used to transfer bulk material solids. However, a screw may also be used to heat or cool a product as it is being conveyed.

The type of screw depends on the application. manufactures hollow pipe for small amounts of heat transfer as well as complete hollow-flight screws when larger amounts of heat transfer are required.

Heat Transfer Screws are constructed of mild steel, standard 300 series Stainless Steel (304SS or 316SS) or heat resistant Stainless Steel (309SS, 310SS or 330SS) depending on the temperatures involved. The units are sized and designed to ensure proper heat transfer per each application.



WARNING AND SAFETY REMINDER

LOCK OUT POWER

Before removing covers, guards or before servicing. Exposed moving parts can cause severe injury.

FEATURE	FUNCTION	BENEFIT
Die Formed Flights	Allow more fluid flow inside the flights	Increased surface area
Large Pipe Size Trough Housing	Minimizes screw deflection and maximizes surface area	Prevents screw from rubbing on trough housing
Size 9" to 30"	Handles a wide range of applications	Provides the size needed based on space and cost
Slow Operating Speed	Provides retention time for heat transfer to occur	Ensures proper heat transfer and minimizes wear
SEW Bearing and drive with coupling Arrangement	Isolates drive components from material	Protects the drive from temperature
Lengths up to 27' in Single Piece Screw	Allows for no intermediate hanger bearing	Eliminates a restriction point to the material flow
Bolted Flange or clamp connection Covers	Seals equipment making it dust and weather tight; Convenient opening and maintenance	Eliminates environmental or product contamination and minimizes heat loss
Jacketed Trough	Provides additional surface area	Additional heat transfer
Rotary Unions purchased with the Equipment	Ensure proper fit-up between the union and the screw	To ensure proper siphon pipe arrangement, unions are

HEAT TRANSFER AREA BY DIAMETER

NOMINAL SCREW DIAMETER	HEAT TRANSFER AREA / FT. OF LENGTH (FT ² /FT)	
	CORE-BUSTER	HOLLOW-FLIGHT
9"	1.7	3.0
12"	2.3	4.2
18"	3.3	7.2
24"	4.7	11.8
30"	6.3	17.1

Notes:

1. Areas in chart are based on single rotor. Additional area may be achieved by using twin, triple or quad rotor.
2. Figures in chart are provided for approximation purposes.

Heat Transfer Screw Conveyor Design Details ▼

Hollow-flight Screw



Rotary Union Connection



SEW Motor



SKF Bearing

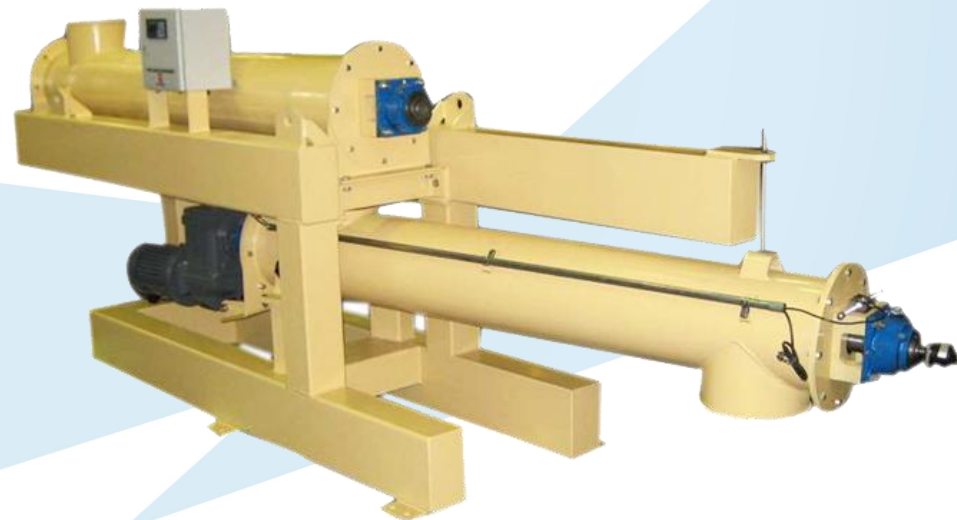


Weighing Screw Conveyor

The dust-tight weighing solution ▼

The screw weighing feeder is a production metering equipment for continuous conveying, dynamic metering and control feeding for various powdery and bulk materials. It is widely used in cement, chemical industry, metallurgy, ceramics, grain, transportation and other industries. As an automatic device for measuring and batching, it can provide accurate measurement data and control means for field management and operation.

The screw feeder has two types: single tube single layer and double tube, double layer. If it is the former, it can realize measurement and conveying at the same time. If it is the latter, the above undertakes steady flow and conveying, and the bottom undertakes measurement and conveying that can have better steady flow effect and save spaces. Besides, the length of the conveyor can be designed according to actual conditions.



05 Weighing Screw Conveyor Application ▼

Weighing screw feeder is a kind of measuring equipment for feeding control, dynamic measuring and continuous conveying bulk material and powder. It can be widely used in building materials, chemical, coal, ports, ceramics, food, and other industries.

Hydrated lime application



Cement application



Sugar mill application



Grit-Water Separator ▼

- The driving unit use s shaft-mounted reduction box connected with screw axis. On the top of sand convey chute, supporting bearing is installed. This bearing device is waterproof and dustproof and is convenient for lubrication and maintainece.
- Diameter of screw axis is $\Phi 280\text{mm}$. using shaftless screw ensures smooth material conveying.
- Screw sand conveying chute is U-shape section, spiral chute diameter is 320mm, installation angle is about 25° . The feed port is open and other parts are sealed with covers. Disassembly mode is used. Discharge port is set at upper part which is 1.75m above the ground.
- Screw sand conveying chute is integrated with water tank. It has enough strength and rigidity, no leakage. The overall structure is supported by profile steel fixed on the concrete foundation.

