



Capacities Available : 250 Kg/Hr, 500 Kg/ Hr, 750 Kg/Hr, 1000 Kg/Hr

- High efficiency Stainless steel, aluminum coils or MS Hot dip galvanized coils.
- High efficiency axial flow fans.
- PE/PA/SS 304 belt option available
- Freon or ammonia refrigeration option available
- Time between two defrosts more than 15 hrs.
- Separate motor with gear and VFD for belt and drum.
- Software programmed logic provided for user interface.
- Easy access to sanitation and maintenance.
- Safe, trouble free operation.

General :

The **Starcore Refrigeration Ltd. SPIRAL FREEZER** is completely factory assembled. The conveyor belting is made of metal, plastic or combination material. The conveyor supports is constructed with aluminum lined, low friction, food grade, plastic wear strips designed for minimum belt wear. The refrigeration coils are constructed from SS/aluminum, designed for maximum heat-transfer efficiency and operation intervals.

The low temperature air is delivered from high-efficiency plug fans directly driven by high efficiency motors. The special feature of Starcore Refrigeration Ltd. SPIRAL FREEZER is that no water is used for defrost. Defrost is enabled through a special hot gas defrost mechanism.

The freezer enclosure is constructed with 6-inch thick high-efficiency urethane. The enclosure skin is Pre Coated GI (or Stainless Steel SS304 available on request). Large access doors are located for coil, conveyor and motor inspection & maintenance.

Belting:

The carrying belt that is used on a spiral is metal, plastic or a combination. This is the belt which comes into direct contact with the product in the spiral.

Belt Sprockets:

Are made in a plastic material, these sprockets directly engage the belt and are located near the take up drive.

Belt Stretch:

Allowance is made for Elongation of the belt due to physical wearing.

Belt Tension Adjuster:

The force that comes into play on the outer edge of the belt, which is a function of the overdrive on the cage. When this tension gets too high, the outer edge of the belt wants to lift upward, causing potential problems. To curtail this problem a belt tensioned adjuster is provided.

Drum:

The central part of the spiral used to drive or give force to the belt is made of SS304.

Chain links:

The rod which connects the belts together are typically in metal or plastic materials.

Tiers:

The belt surface area where the product moves are so built so as to accommodate the product height.

Output:

Various spiral Configurations are available like Horizontal Air Flow, Single Vertical Air Flow Upwards or Downwards or Dual Vertical Air Flow on which the discharge of the product varies. Starcore Refrigeration Ltd. has engineered systems for Horizontal air flow only with solid drums wherein the input is at a lower level than the output discharge.

Driver and Driven:

The drive motor is TEFC squirrel cage induction motor with reducer, chain and drive sprockets which are used to run the drum and the belt together in synchronization with each other.

Driver Chain Lubricator:

The chain assembly if required to get oiled is fitted with a Brush assembly which is to automatically lubricate the main drive chain.

Thermal Elongation:

Belts are designed to take care of belt elongation which may happen due to thermal impacts which the belt undergoes when passing from high temperatures to low temperatures.

Belt Trackers:

Flange Pulleys are provided on the belt edges having one side raised, which help to keep the belt guided.

Frame Assembly:

The structural frame work is made of SS304 or Aluminum.

Flippers:

In order to equalize wear on both edges of the belt continuous turning the belt over as it travels through the spiral system is required flippers are installed.

Overdrive:

The speed of the drum at any given point of time should be greater than the belt speed measured along the tip of the belt at the inside edge. The synchronization is achieved through an appropriate gear systems and variable frequency drives.

Side Belt Guides:

Pulleys or strips, usually made from plastic are installed which help guide the belt near the in-feed and discharge pulleys.

Rollers:

Are installed throughout spirals for reverse bends of the belt, or to help guide the belt in selected areas.

Take Up Assembly:

This area is one where excess belt is gathered, to control which a secondary drive to the main cage drive is installed, which acts in conjunction with the main drive to govern belt tension.

Torque Limiter:

Torque Limiter is installed on the take up drive to act as a safety slip in case of jam in the system.

Track:

Horizontal carrying supports where the belt rides on.

Track Wear Strips:

Usually plastic materials placed on top of the track, for decreased friction on the system.

Under Tensioning:

A state where there is too little drive force being applied to the cage/belt interface causing uneven belt surging.

Up go:

A spiral where the product is fed at the bottom and exits at the top

Vertical Cage Bars:

Structural supports which run vertically near the inside edge of the belt (the outside diameter of the cage), normally a material which has enough effective force to drive the edge of the belt properly.

Vertical Wear Strips:

Typically plastic wear strips which are attached to the vertical supports to interface with the inside belt edges.

Spiral Capacity as Tabulated Below

Sl.	Product	FR Time in Minutes	Belt Length	Tiers	Output Kg/hr
1	Nugget	62.61192	423.888925	14	350
2	Finger	62.91999	429.552084	5503	
3	Burger	63.22809	434.233012	13	210
4	Seek Khawab	54.50	436.47499	13	500
5	Shami Khawab	54.1	426.078929	13	550
6	Saucegages	95.28857	435.470554	13 275	



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