

RECOMMENDED SPIRAL AND RETURN PATH CONFIGURATIONS

The various spiral configurations & their recommended return path.



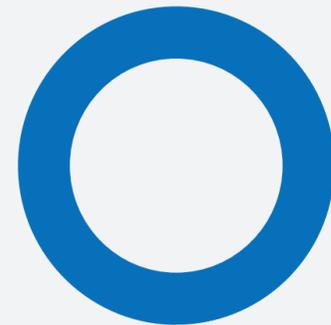
90 DEGREES



180 DEGREES



270 DEGREES



360 DEGREES



SPIRALSURF[®] EDGE DRIVE

REINVENTING THE DRIVE. THE NEW PLASTIC EDGE DRIVE SYSTEM!

YOUR TRUSTED PARTNER FOR SUCCESS

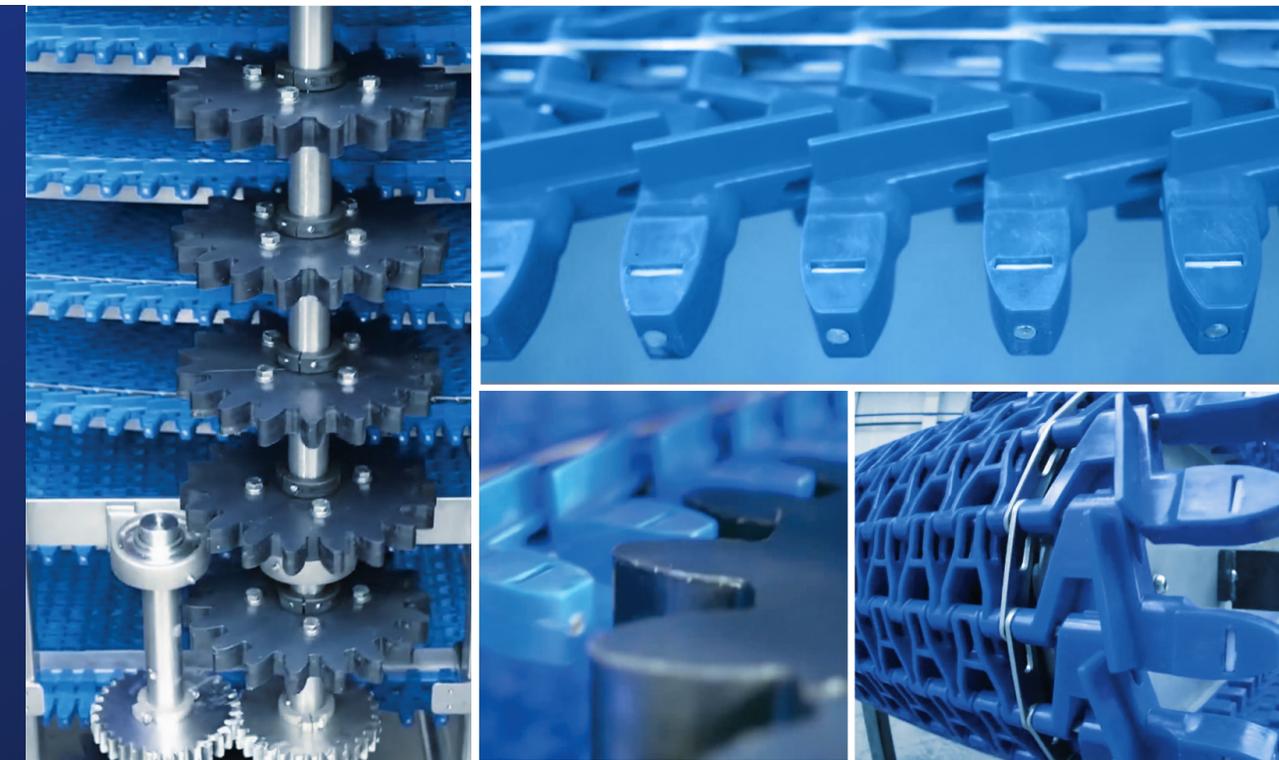
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SPIRALSURF EDGE DRIVE INTRODUCTION

Introducing our latest addition to our plastic line of conveyor belts, the SpiralSurf® Edge Drive.

The SpiralSurf Edge Drive was designed to reduce costs while still being able to guarantee results. While each belt has its own set of advantages, the Edge Drive is well known to reduce maintenance issues, downtime and optimize cost savings to the customer.

This brochure will outline the guide to design and build the Edge Drive in the most efficient manner and recommended steps that have been tried and proven by years of experience, understanding of spirals and how they react in different industries and conditions.

While the SpiralSurf Edge Drive is available for most applications, there will be certain projects where close attention will need to be paid, and certain solutions will need to apply, such as sticky products in the poultry industry.

SPIRALSURF EDGE DRIVE ADVANTAGES

The SpiralSurf Edge Drive was designed to transition conventional spiral designs to more cost effective solutions while at the same time offering a simpler, easy clean system.

Below are some advantages of the Edge Drive system:

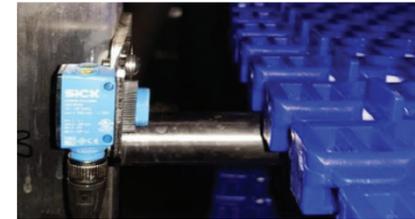
- **Minimizing breakdown time and maximizing production time.** - Removal of the drum and placement of the drive shaft on the outside allows for a cleaner production run and easier maintenance routine.
- **Possible up and down system on the same machine.** - The Edge Drive allows the possibility of having an up system and down system on the same machine allowing for projects with space constraints to utilize the system.
- **Cost reduction of Drum.** - Eliminating the drum eliminates the cost of a drum, giving a price advantage against competitors and conventional spiral systems.
- **Single drive shaft.** - On smaller units, a single drive shaft can be used to drive the belt.
- **Gearbox can be placed outside of enclosure.** Whether space constraint or applications where freezing could cause unforeseen breakdowns of the gearbox. This design makes for an easy design, where you can place your gearbox outside of the enclosure.

SAFETY MECHANISMS

Edge Drive Systems have been engineered to deliver exceptional service throughout its entire lifespan. Certain safety mechanisms are critical in guaranteeing prolonged life of the SpiralSurf Edge Drive installation. These mechanisms described in this section are installed to prevent catastrophic failure in unexpected events of high tension.

TIER LIFT SYSTEMS

Tier lift sensors prevent flipping of the belt during operation. These sensors are installed on the first, last and in-between tiers. Tier lift sensors installed in-between tiers are shown.



TIER LIFT SENSORS MONITORING BELT LIFT

SPIRALSURF EDGE DRIVE CONTROL DETAILS

The link between the main drive and assist drive is the ratio of the take-up assist drive speed to the edge drive speed. This ratio is dynamically adjusted to keep the torque of the take-up assist drive within the set point range.

The set point is determined by running the spiral at various tensions and various conditions expected during operation, to determine the optimal ratio at the different running conditions. If the torque required for different operating conditions is not the same, the torque set point needs to be adjusted separately for each running condition. The setup of the take-up assist is an iterative trial and error process.

The system is run at various conditions and speeds and the torque values for the required set points are recorded. The speed is adjusted second to second by a value of 0.01% per step change when the torque is within the required range. If the torque is outside the desired range, then the step change is 0.1% per change increment. This change is applied directly to the take-up speed to drum speed ratio.

Alternative methods of control: Direct torque control, where the desired torque is calculated to keep the belt at the required tension, then a closed loop torque control is used. This requires an encoder wired back to the VFD. The set point from the control system to the VFD is then a torque value, and the VFD will supply that level of torque, instead of a speed output

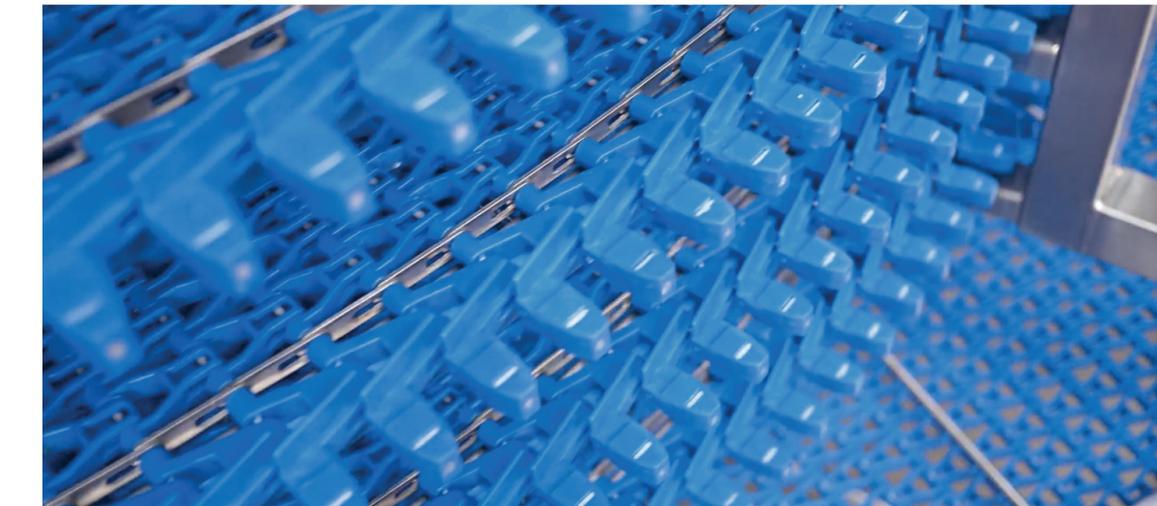
For assistance, please contact your Ashworth representative.

Material Caution: Ashworth products are made from plastic and are potentially flammable. Keep the belt away from extreme temperatures or open flames.

Information: Ashworth's manuals and directions are given as a guideline and will not take responsibility for incorrect machine design, failures, or injuries incurred.

BELT AND MATERIAL SETUP SPIRALSURF EDGE DRIVE

PRODUCT SPECIFICATION	
PITCH	1.5 in (38.1 mm)
LINK THICKNESS	.47 in (12 mm)
OPEN AREA	68% & 50.9%
DRIVE METHOD	DRIVE METHOD - SPIRALSURF EDGE DRIVEN
SURFACE AREA	FLUSH GRID
GUARD EDGES	.47 in (12 mm SIDE)
TRAVEL	BI-DIRECTIONAL



BELT DATA	
BELT MATERIAL	ACETAL
RODS MATERIAL	STAINLESS STEEL
WEIGHT	2.04 H/FT ² (10kg/m ²)
MINIMUM INNER RADIUS	2.2 x BELT WIDTH
ROD RETENTION	OFFSET HOLE
ROD DIAMETER	.192 in Ø (4.9mm Ø)
TEMPERATURE RANGE	-40°F to 200°F (-40°C - 93.6°C)