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## Chiorino HP Compact Drive Total Hygiene Approach

The HP Compact Drive was derived from Chiorino's Industrial Plastics and coatings division, which developed a coating for Military applications. This included the coating of fabrics such as an Armored Hovercraft, or even uniforms for Hazmat protection. The military applications required the elimination of liquid absorption in the fabrics and the ability to work well in more extreme climatic conditions. At the same time Chiorino was putting new conveyor belt lines into service, which included TPU Calendaring. The experience with the military applications pushed Chiorino to use the new HP System in conjunction with the new production line and a whole new family of conveyor belts has since been developed!

The HP Compact Drive is the newest addition to this development as a synchronous harder denser homogenous belt, which pushes the envelope and can be considered the fourth generation in conveyor belt design.

1. **First Generation:** Fabric Belts with fabric tension layers PVC or TPU. Fabric exposure or fraying combined with polymeric cover breakdown lead to frequent replacement in food processing, meat and poultry applications with continuous wash-down requirements.
2. **Second Generation:** Modular belts were developed without fabric tension layers. Running on sprockets this design also was considered more synchronous. While considerably more expensive than fabric belts, the modular design did allow for quick disconnection of the belt and then quickly put a belt back in service once cleaned. The difficulty with the modular concept is hygiene! There are many nooks and crannies that need to be cleaned with a high cost to achieve hygienic safety levels. This is now becoming a food or product safety concern. In addition, energy consumption is higher than newer belt designs
3. **Third Generation:** The third generation was the development of homogenous monolithic belts. These are extruded polyester polyurethanes with teeth mating to sprockets for synchronous operation. This is an extruded solid sheet with teeth in the extrusion process. This has been gaining market acceptance for a number of years, as it is more easily cleaned and is less expensive than modular conveyor designs. However, extruded monolithic types are limited in the

tensioning and ability to handle loads without becoming thicker and heavier, resulting in increased energy consumption and they are hydroscopic in nature. This results in the absorption of water with continuous wash down applications. A waving affect can frequently result, that is the result of a polymeric breakdown of the material. This can then become cracking in the cover or extruded sheet which can then be a hygienic concern.

4. **Fourth Generation:** Chiorino HP Compact Drive is using the HP System and experience, producing a belt that is not hydroscopic in nature, can accept extreme wash-downs and HAACP procedures easily. HP Compact Drive can also handle temperature extremes both cold -22F and hot +230F (steam cleaning is possible). This new design is much more easily cleaned. Chiorino claims a 60-60-60 return on investment. A 60% reduction in water usage, a 60% reduction in time to clean the belt, and up to 60% energy cost reduction compared to Modular. There is a hybrid traction tension layer that is more predictable, allowing for better suitable for Z conveyors designs. Completely sealed this new belt is NSF Certified, FDA and USDA compliant. In addition, REACH compliance and European standards are all met.

The company expects food safety and hygienic responsible personnel in all types of food processing to find HP Compact Drive a much more suitable product to use in conveying applications.