

G&T's vertical sorter/merge surpasses previous technologies by increasing sort speed performance and load capacity.



Introduction

The G&T Vertical Sorter / Merge (VSM) is designed to act either as a Vertical Sort where a single conveyor line can be divided among two destinations, or act as a Vertical Merge where two separate conveyor lines can be brought together and delivered to a single destination. The VSM has been engineered to operate in a bi-directional manner in both an automatic and manual mode.

Product Description

The G&T VSM is comprised of two pivoting conveyors that move vertically in opposing directions, with a third conveyor that is statically mounted in the lower position. Precise vertical movement of baggage is accomplished by transmitting torque from the crank and rocker arms to the conveyors through the use of robust connecting rods. Effective tracking is accomplished utilizing shaft encoders and photoeyes.

Designed with adjustable width sideguards, the VSM can accommodate standard and oversize luggage and can be specified at either 39" between guards (standard), or up to 45" for oversize luggage. Adjustable in the field, the side guards can also be set at an angle to aid in bag positioning as a centering device.

Throughput

The VSM has been designed to exceed a minimum sustained rate of 35 bpm when cycling between vertical positions for each bag. This rate can exceed 40 bpm when the device is not cycling between vertical levels.

Controls

The VSM utilizes its own control panel, servicing all local motor and control devices on the unit. The control panel can be integrated into the overall controls system architecture, or may be configured as a stand-alone unit. Conveyor system e-stop circuitry is easily integrated with the control panel. Local functionality is supported by various controls on the control panel. In the event of a vertical sorter conveyor position switching device breakdown, it is possible to manually position the device into one configuration. Interface options to the BHS PLC are provided and used when the VSM is to be positioned manually.

Design

The VSM is designed to provide positive tracking of the belts through the use of proven v-guided / sheave technology. Belt tension is adjusted using two take-up pulleys which allows for accurate load distribution. The frames are constructed using 11 gauge hot rolled steel and ¼" structural angle for support. The horizontal frame members are constructed of 10" x 3" x 3/16" formed steel. The horizontal legs are constructed of 8" x 3" x 3/16" formed channel with adjustable legs for floor irregularities.

Each conveyor comprising the VSM is independently driven. Each motor is a shaft mounted, right angle, integral gear-motor equipped with VFDs to allow for a range of speeds. The three transport conveyors are equipped with 1½ hp brake motors and the crank arm motor is equipped with a 2 hp brake motor.

Technical Specifications and General Descriptions

Safety

Safety guarding is provided to ensure adequate personnel safety around this device. Guards are interlocked so as to disable the vertical movement of the VSM when the guards are open or removed. A maintenance bypass switch is provided which has the capability to bypass the interlock.

Maintenance

The VSM utilizes off-the-shelf components to insure ease of parts replacement and maintenance time is reduced due to the ease of accessing all critical components.

Characteristics	39BG MODEL	49BG MODEL
Width (Overall)	76-1/8 in.	86-1/8 in.
Length (Overall)	157 in.	157 in.
Height (Overall)	90 in.	90 in.
SideGuard Height	12 in.	12 in.
Estimated Weight	3750 lbs.	4500 lbs.
Bed Width (Between SideGuards)	39 in.	Variable 39 in. to 49 in.
Belt Width	38 in.	48 in.
Bed Material	11 ga. hot rolled steel	
SideGuard Material	11 ga. hot rolled steel	
Belt Material	Black, PVC saturated and encased polyester multifilament	
Belt Speed	Variable	
Conveyor Drive Motors	1.5 HP, brake, 3 Phase, 460V, 60 Hz, right angle shaft mounted gear motor	
Crank Arm Motors	2 HP, brake, 3 Phase, 460V, 60 Hz, right angle shaft mounted gear motor	
Conveyor Drive Pulleys	6.75 in. diameter, trapezoidal pulley	
Conveyor Snub Pulleys	4 in. diameter, flat faced pulley	
Conveyor Tail Pulleys	6 in. diameter, flat faced pulley	
Frame Material	3/16 in. formed channel	
Load Capacity: Static	450 lbs.	
Load Capacity: Dynamic	120 lbs. / 40 lbs. per linear foot	
Cycling Throughput Rate	Variable dependent on belt speed - 45 Bags Per Minute (BPM) at 300 FPM	

Features and Benefits

- Superior Quality ■ Heavy Duty ■ High Capacity ■ Easily Maintained ■ Safety Orientated Design



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