

CLAIMS

1. A diverter assembly for handling articles transported on a conveying surface, comprising:
at least one diverter arm positioned adjacent to a side of the conveying surface;
a motor coupled to a drive arrangement for moving the diverter arm over the conveying surface;
a controller unit having first and second controllers are coupled to the motor for operating the motor at a plurality of speeds, wherein the first controller comprises a programmable logic controller and the second controller comprises an inverter controller; and
a sensor arrangement coupled to the controller unit for monitoring the position of the diverter arm, wherein the sensor arrangement sends a signal to the controller unit when the diverter arm reaches a pre-determined position, wherein the controller unit operates the motor at a slower speed in response to the signal from the sensor arrangement.
2. The diverter assembly of claim 1 wherein the sensor arrangement comprises a plurality of position sensors.
3. The diverter assembly of claim 4 wherein at least one position sensor is coupled to the programmable logic controller and at least one position sensor is coupled to the inverter controller.
4. The diverter assembly of claim 4 wherein the sensor arrangement comprises four position sensors.
5. The diverter assembly of claim 1 wherein the drive arrangement includes a drive rod and a swivel arm.

6. The diverter assembly of claim 7 wherein the sensor arrangement includes a sensor mounting plate.
7. The diverter assembly of claim 8 wherein the sensor mounting plate includes a slot on which sensor is mounted.
8. The diverter assembly of claim 9 wherein the slot comprises a curved slot.
9. The diverter assembly of claim 1 wherein the plurality of speeds comprises at least two different speeds.
10. The diverter assembly of claim 1 wherein the diverter arm is operable to move from the first position to the second position in about 0.3-0.5 seconds.
11. A method for handling articles transported on a conveying surface comprising:
 - providing a diverter assembly having at least one diverter arm positioned adjacent to a side of the conveying surface;
 - determining whether the diverter arm is in a first position;
 - operating a motor of the diverter assembly at a plurality of speeds;
 - moving the diverter arm from the first position to a second position at a first speed;
 - monitoring the position of the diverter arm, wherein when the diverter arm reaches a pre-determined position, operating the motor at a second speed, wherein monitoring the position of the diverter arm further includes operating the motor at a third speed when the diverter arm reaches a second predetermined position.
12. The method of claim 13 wherein the second speed is slower than the first speed.

13. The method of claim 14 further comprises moving the diverter arm from the predetermined position to the second position.
14. The method of claim 13 wherein the third speed is slower than the second speed.
15. The method of claim 17 further comprises:
moving the diverter arm at the third speed from the second-predetermined position to the second position.
16. The method of claim 13 wherein operating the motor of the diverter assembly at a plurality of speeds at different positions reduces vibration.
17. A diverter assembly for handling articles transported on a conveying surface comprising:
at least one diverter arm positioned adjacent to a side of the conveying surface;
a motor coupled to a drive arrangement for moving the diverter arm from an initial position to a second position over the conveying surface; and
a controller unit coupled to the motor for operating the motor at a speed profile, wherein the controller unit is adapted to
operate the motor at an initial speed, when the diverter arm moves from the initial position to a pre-determined position, and
operate the motor at a second speed slower than the initial speed, when the diverter arm moves from the pre-determined position to the second position.
18. The diverter assembly of claim 21 wherein the controller unit comprises an inverter controller.

19. The diverter assembly of claim 21 further includes a sensor arrangement coupled to the controller unit for monitoring the position of the diverter arm.

20. The diverter assembly of claim 23 wherein the sensor arrangement comprises a plurality of position sensors.

21. The diverter assembly of claim 24 wherein at least one position sensor is coupled to the controller unit.