On-Line Training Program

Module 3

Why would I want an AGV?

AGVS Product Section

of

MHI
AGV market

- The automatic guided vehicle (AGV) market is one of the fastest growing in material handling

“Of all of the materials handling equipment types in warehouses and distribution centers today, automatic guided vehicles (AGVs) are arguably among the most dynamic. Over the last few years, the equipment has been evolving and advancing quickly.”

“Each of these disparate vehicles [AGVs] shares something in common: They open up potential new opportunities for the market if end users embrace them.”

*Modern Materials Handling*
How AGVs are delivering more value

- Have significantly evolved over the years
- More affordable today due to new guidance options and vehicle types
- Used in every industry and in a wide variety of applications
The first AGVs

- Limited use – only in automotive and industrial manufacturing
- Inflexible - guided by wires embedded in floor
- Expensive
- Difficult to install and maintain – requiring highly skilled labor
- Only used for moving materials from point A to B
- Unreliable
- Typically unit load and tugger vehicles
AGVs today

- Used in all industries, including warehouses/distribution centers, food and beverage, manufacturing
- Improved flexibility - Guided by laser, inertial, optic, grid or magnetic tape
- Easy to install and modify
- Modular
- Affordable
  - Easy-to-use controls
  - Diverse applications and AGV types
    - Masted vehicles – forked, clamp, single-double
    - Unit load – lift deck, conveyor
    - Tow or Tuggers
    - Carts
    - Custom

Improved technology, battery charging options and safety bumpers increase reliability and operating time

High return on investment (ROI) due to long service life
Benefits of AGVs compared to manual transport

- AGVs:
  - Improve safety
  - Reduce labor cost
  - Reduce product damage
  - Reduce facility damage
  - Operate continuously
    - No breaks or absences
  - Feature multi-directional movement including forward, backward, and sideways (90 degrees)
  - Are more reliable and durable
  - Provide inventory control
  - Work in hazardous or cold environments
Other benefits of AGVs

AGVs are:

- Flexible
  - Easily installed and modified
- Scalable
- Clean and quiet
- Not a permanent obstacle and keep aisles clear
- Easily moved and retooled
- A multiple vehicle solution that allows the system to remain productive during maintenance, charging and downtime
AGVs reduce labor costs

- AGVs operate 24/7, reducing manpower
  - Less money spent on:
    - Wages
    - Benefits
    - Lost time
    - Human resources (recruitment)
    - Training
    - Injuries

- AGVs are more efficient and consistent
  - Reduce number of deliveries

- AGVs increase productivity per employee
AGVs increase productivity

- **AGVs:**
  - Operate 24/7 with no breaks
  - Are dependable and predictable
  - Have a high degree of accuracy
    - Fewer errors
  - Ensure timely delivery of materials
    - Ideal for just in time (JIT) delivery
AGVs reduce operating costs

- **AGVs:**
  - Operate at a steady, consistent speed leading to lower maintenance costs than forklifts
  - Reduce utility costs
    - Can operate in lights-out environment
  - Help achieve lean manufacturing objectives
AGVs provide ultimate flexibility

- Easy modification
  - Simple changes can be completed in hours

- Scalable
  - Add vehicles to increase production rates

- AGVs can integrate with other equipment (AS/RS, forklifts, conveyors, to name three)

- Modular
  - Change vehicles’ carriers to accommodate new products/loads
  - Numerous load handling options available include roller conveyor, forks and robotic arms

- AGVs are not barriers to movement
AGVs decrease facility & product damage

- AGVs feature laser safety bumpers, which stop the vehicles from running into:
  - Other equipment
  - Inventory
  - Walls and racks
- AGVs are computer controlled, which eliminates inventory spills caused by human error
- AGVs provide precision placement of loads in pickup and delivery stations
- Trailer loading AGVs adapt to length and skew of each trailer to prevent damage
AGVs improve safety

- AGVs:
  - Utilize laser bumpers to sense objects, causing AGVs to slow down or stop
  - Feature audible sounds and lights making them easy to detect
  - Include emergency stop buttons
  - Travel on a designated path
  - Reduce insurance premiums
  - Help eliminate accidents and personal injury
AGVs provide inventory control

- Position and status of AGVs are constantly tracked and controlled by a computer system

- AGVs’ control system can integrate with warehouse management systems (WMS)

- Inventory can be identified by RFID or barcodes
For More Information:

Contact the
AGVS Product Section
of
MHI

http://www.mhi.org/agvs