DAIFUKU

Product Profile

Automatic Guided Vehicles

2D Laser

Vertical

3D Laser

Detection

Object

DAIFUK

Object

Introducing the M3K-CF – a counterbalance fork AGV built on Daifuku's robust AGV technology, yet capable of manual operation when necessary for production needs.

M3K-CF Counterbalance Fork

3,000 lbs Pallet Capacity

With a capacity of 3,000 lbs (1360 kg), the M3K-CF is ready to move heavy pallets.

FEATURES

Safe: The M3K-CF includes 6 laser scanners to detect obstructions and personnel.

Efficient: The M3K-CF is battery powered and charges automatically, yielding up to 24/7 fully automatic operation.

Connected: With Daifuku's System Automation Manager[™] (SAM) software providing traffic control and fleet coordination, AGV operations may be integrated with Plant Control Systems.

Simple: Daifuku's proven CartTools™ and AGV Tools software products provide a user-friendly interface, allowing customers to modify and expand their system.

d d d ers

2D Laser Safety Scanner

Navigation

Sensor

nertial Navigation: Odometry data and

Natural Feature Navigation (NFN):Laser NavigationThe AGV determines its location using LIDAR to
identify structures in the environment and matchLaser Navigation
targets seen by or
by vehicle computed by the second seco

Laser Navigation: Field of reflective targets seen by on-vehicle sensors and used by vehicle computer to determine location.

NAVIGATION ENHANCEMENTS

NAVIGATION OPTIONS

Inertial Navigation: Odometry data and in-floor waypoints are used by the vehicle computer to determine location.

Enhanced Navigation: Additional sensors can be added to augment the vehicle's navigation technology.

Co-Navigation Technology: Multiple navigation packages may be used on a vehicle in challenging environments.

2D Laser Safety Scanner

FEATURES AND OPTIONS

• Automatic Charging, 300 amps

their locations to a virtual map of the facility.

- Communications Wi-Fi 5
- Front & Rear Video Camera
- Warning Light/Horn

- Blue Warning Light
 Automatic Shut Off
- Sleep/Auto-wake
- Music Generator

Smart Handling AGV Solutions

DAIFUKU

SMART HANDLING AGV SOLUTIONS

~		
	General Specifications	5 200 lbs (2 250 ltr)
	Weight without battery	5,200 lbs (2,358 kg)
	Dimensions (less forks)	W: 46" (1168 mm) L: 84" (2133 mm)
	Lift Range Options	Floor to 48" (1219 mm) • Vehicle height 83" (2108 mm)
		Floor to 72" (1829 mm) • Vehicle height 107" (2718 mm)
	Fork dimensions	W: 3" (76 mm) L: 48" (1219 mm) Thick: 1.5" (38 mm) each
		Out-to-Out fork dimension 28" (711 mm)
	Capacity	3,000 lbs (1360 kg) at 24" (609 mm) load center, maximum
	Scanner Front – 2D Laser	Safety rated – ANSI B56.5 compliant
	Scanner Rear/Side – 2D Laser X 2	Safety rated – ANSI B56.5 compliant
	Scanner Front 3D Laser	Object Detection
	Scanner Vertical/Side 2D Laser X 2	Object Detection
	Pedestrian Awareness	Blue Warning Light, Front & Rear
		Stack light and horn, per ANSI B56.5
	Speed – 6 speeds	15 FPM (4.5 MPM)to 360 FPM (109 MPM), 1 FPM (.025 MPM) increments
	Battery Options	24VDC
	Battery weight min/max	855 lbs (388 kg) / 1550 lbs (703 kg)
	- 510 AH lead acid	Charge rate 140 amp
	- 450 AH sealed AGM gel	Charge rate 140 amp
	- 558 AH TPPL	Charge rate to 300 amp
	Automatic Charge	300 amp charge rate
	Manual Charge	Up to 82 amp charge rate
	Environment	
	Atmosphere	0 to 40° C, 25% to 95% non-condensing humidity
	Dust/Water-proof	No
	Floor Specs – Edges/Debris	.25" (6.35 mm) abrupt elevation change maximum, smoothed
	Expansion Joints	.25" (6.35 mm) minimum
	Friction	0.6 coefficient of friction between wheels and floor, minimum
	Floor Conductivity	Static dissipative, less than $3.5 \times 10^7 \Omega$
	Radio Communications	Wi-Fi 5
_	Detailed Specifications	
	Drive Direction – Automatic	Forward and Reverse
		88% @ Maximum Load Rating
	Duty Cycle Drive Unit – Wheel	•
		10" dia X 4" (254 mm X 102 mm) Poly Gear driven steerable turntable
	Drive Type Motor	
	Motor Brake	3.8 kw AC
	Brake Rear Wheels	Spring actuated (fail-safe)
		Poly 8" dia x 4" wide (204 mm X 102 mm) (Shore A, durometer 85)
	Navigation	Daifuku AGV – Natural Feature Navigation, Laser and Inertial
	Steer Angle Sensor Encoder	
	Steering /Stopping Accuracy	
	HMI Display	5.7" (145 mm) color touch screen – errors & destinations
	Video Camera	Front/rear, 1080P, supports up to 128GB microSD card
	Manual Movement	Steerhead - Operator-aboard
	Minimum Path Radius	4' (1219 mm) @ 100 FPM (30 MPM), 8' (2438 mm) @ 160 FPM (48 MPM)
	Drive Stalled Detection	Yes
	Distance Initiated Functions	Yes – in 1" (25.4 mm) increments
	Program Method	PC and Wireless
	Obstacle Detection	360°, programmable up to 9' (2.8 meters)
	Emergency Stop	4 – Left/Right side and 2 in rear
	Wiring	Per NEC ampacity guidelines

CARTTOOLS SOFTWARE

Simple, standardized toolbox of commands that make configuration a snap.





DAIFUKU

30100 Cabot Drive Novi, MI 48377 USA +1-248-553-1000 info@Daifukuna.com www.Daifuku.com

SAM[™], SmartCart^{*}, CartTools[™], and SmartSteer[™] are trademarks of Daifuku Airport America. All other trademarks are the property of their respective owners.

NOTICE: The information, data and specifications in this brochure are subject to change without notice and should not be used for construction purposes. Daifuku does not represent or warrant that selection of components or accessories set forth in this brochure will necessarily result in proper installation, operation and/or maintenance of such equipment or system, and Daifuku disclaims responsibility for any and all damages and injuries resulting from selection, design, installation, operation or maintenance performed by non-Daifuku personnel.