

M3K-CF

Counterbalance Fork

3,000 lbs Pallet Capacity

Automatic Guided Vehicles

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.

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.



NAVIGATION OPTIONS

Natural Feature Navigation (NFN):

The AGV determines its location using LIDAR to identify structures in the environment and match their locations to a virtual map of the facility.

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

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

NAVIGATION ENHANCEMENTS

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.

FEATURES AND OPTIONS

- Automatic Charging, 300 amps
- 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

General Specifications

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
Duty Cycle	88% @ Maximum Load Rating
Drive Unit – Wheel	10" dia X 4" (254 mm X 102 mm) Poly
Drive Type	Gear driven steerable turntable
Motor	3.8 kw AC
Brake	Spring actuated (fail-safe)
Rear Wheels	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	Yes
Steering /Stopping Accuracy	+/- .5" (12.7 mm)
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.

