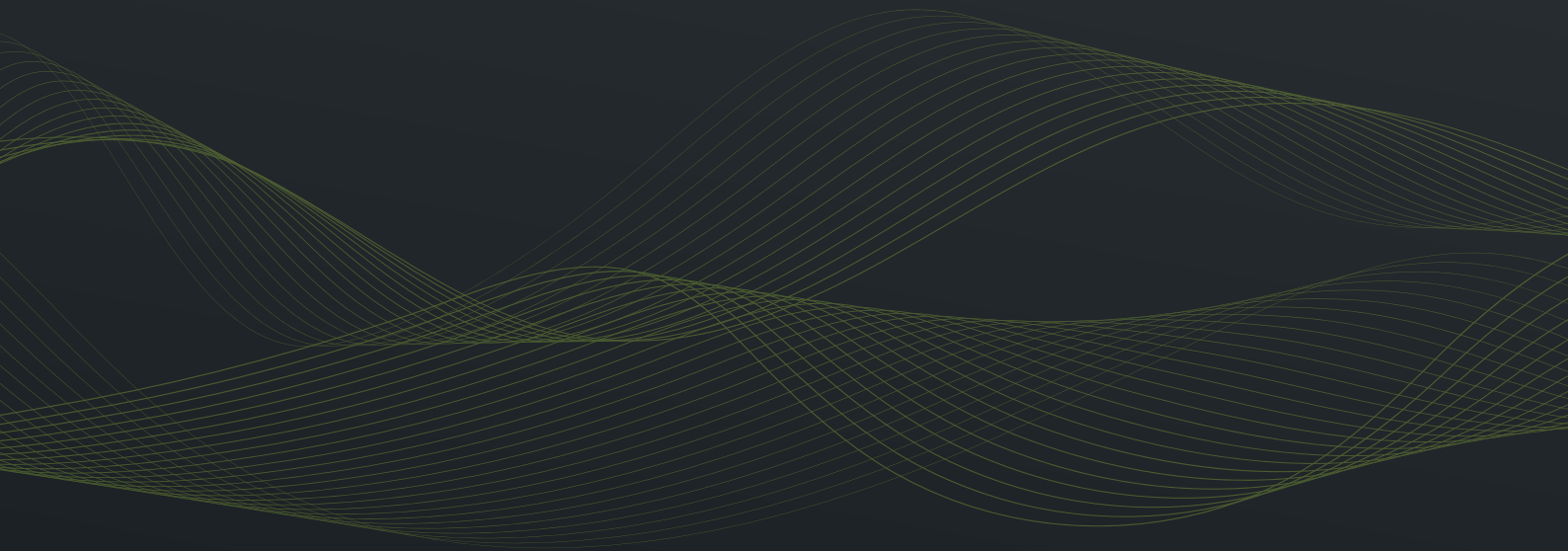# AGILOX PRODUCTS

ONE / NFK / OCF / ODM / BCO / IO / Analytics

AGILO**X**

MOVING AND LIFTING TO MAKE WORK-LIFE EASY AND SAFE.

Table of Contents

AGILOX

THE AGILE VEHICLE
SMALL AND AGILE, THE AGILOX ONE DRIVES
THROUGH THE NARROWEST AISLES

DIMENSIONS (L x W x H)

1,511 MM × **810 MM** × **1,862 MM**
59.5 IN   **31.9 IN**   **73.3 IN**

AGILOX ONE 1,200 mm / 47.2 IN with obstacle avoidance, single scissors and signal light package

PERFORMANCE DATA

620 MM **24.4 IN**	**500 MM** **19.7 IN**	**1,000 KG** **2,204 LBS**	**1.4 M/S** **4.6 FT/S**
max. lifting height	max. station height Reference: Euro pallet	max. lifting weight	max. speed

SPECIFICATIONS

4 omnidirectional drives	**Dual electric spindles**	**LiFePO4 with BMS 3 min charging = 1 h running**	**approx. 400 kg / 880 lbs**
Drive system	Lift system	Battery	Unit weight
< 12 hours (1 vehicle) / 15 minutes (each additional AMR)	**CE, declaration of conformity**	**205 mm / 8.1 IN width 92 mm / 3.6 IN height**	**577 mm / 22.7 IN**
Commissioning time	Certification	Fork dimensions	Overall fork width

MAXIMUM EFFICIENCY

ALL PRODUCTS WITH
THE PROVEN AGILOX
X-SWARM TECHNOLOGY

ONE VARIATIONS

ONE Double Scissor Lift

AGILOX ONE 1,200 mm with a double scissor lifting system

Fork length 1,200 mm
Double Scissor Lift
max. lifting weight 750 kg
max. lifting height 1,110 mm
max. station height 1,000 mm

ONE 1400

AGILOX ONE basic vehicle with lifting forks in length variant 1,400 mm

Fork length 1,400 mm
Single Scissor Lift
max. lifting weight 750 kg
max. lifting height 620 mm
max. station height 500 mm

ONE 1600

AGILOX ONE basic vehicle with lifting forks in length variant 1,600 mm

Fork length 1,600 mm
Single Scissor Lift
max. lifting weight 750 kg
max. lifting height 620 mm
max. station height 500 mm

ONE 1800

AGILOX ONE basic vehicle with lifting forks in length variant 1,800 mm

Fork length 1,800 mm
Single Scissor Lift
max. lifting weight 750 kg
max. lifting height 620 mm
max. station height 500 mm

ONE ADD-ONS

Obstacle Avoidance

Additional 3D sensor system in the direction of travel to increase safety in man-machine mixing mode

Signal Light Package

Light signal to increase safety in man-machine mixing mode (color: blue / green / red), additional signal lights in the fork tips (color: white / yellow)

Barcode Reader

Scanner for the detection of barcodes or QR codes

ESD Protection

Protection or discharge measure for operation in areas with ESD requirements to prevent electrostatic charging

Rubber guards

Rubber lips as dirt deflectors in the front area of the vehicle and on the fork tips

Mobile Charging Device

One mobile charger is recommended per AGILOX fleet (connection 230V / 16A)

AGILOX

AGILOX ONE

DRIVING PATH DESIGN

Load Carrier	A	B	C	D	E	F	G	H	I	J
Euro Pallet 1200 x 800 MM 47.2 x 31.5 IN	1400 MM 55.1 IN	1500 MM 59.1 IN	1800 MM 70.9 IN	3200 MM 126 IN	1800 MM 70.9 IN	2100 MM 82.7 IN	2800 MM 110.2 IN	50 MM 2 IN	200 MM 8 IN	100 MM 4 IN

Minimal passage width

Minimal aisle width

Minimal aisle width for driving in parallel

A

B

C

Block storage

Aisle width for on-coming traffic with V-Max

Aisle width V-Max

D

E

H

*

Turning circle

I

J

Single stations

F

Minimal aisle width for oncoming traffic

G

* DISTANCE LOAD-DEPENDENT

AGILOX
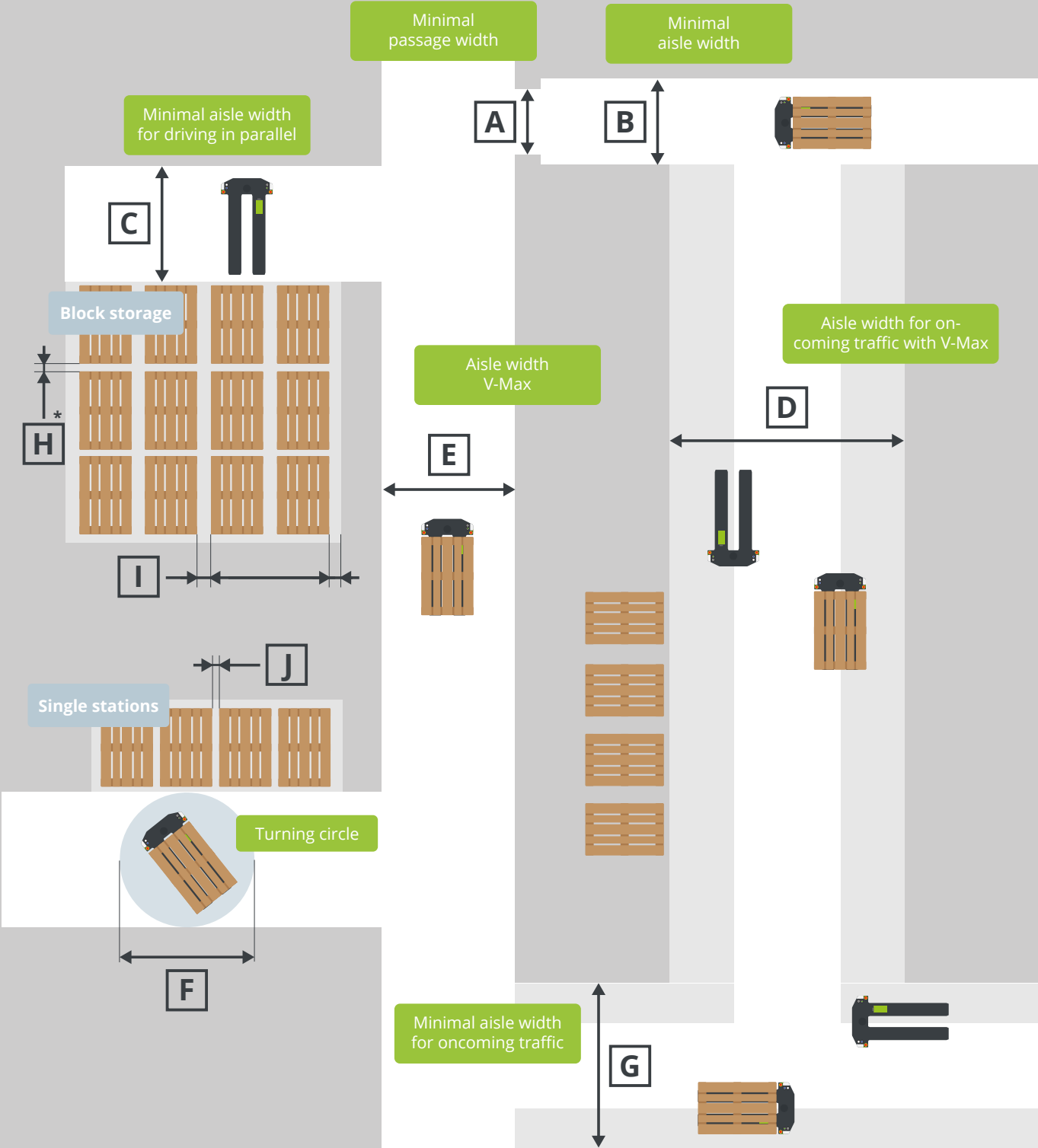
NARROW FORK
THE ONE WITH MONO FORK FOR THE SLIMMER LOAD CARRIERS

DIMENSIONS (L x W x H)

1,511 MM
59.5 IN

×

810 MM
31.9 IN

×

1,862 MM
73.3 IN

AGILOX NFK with obstacle avoidance and signal light package

PERFORMANCE DATA

620 MM
24.4 IN
max. lifting height

1,000 KG
2,204 LBS
max. lifting weight

1.4 M/S
4.6 FT/S
max. speed

SPECIFICATIONS

4 omnidirectional drives	Dual electric spindles	LiFePO4 with BMS 3 min charging = 1 h running	approx. 400 kg / 880 lbs
Drive system	Lift system	Battery	Unit weight
< 12 hours (1 vehicle) / 15 minutes (each additional AMR)	CE, declaration of conformity	92 mm / 3.6 IN	420 mm / 16.5 IN
Commissioning time	Certification	Fork height	Fork width

MAXIMUM EFFICIENCY

ALL PRODUCTS WITH THE PROVEN AGILOX X-SWARM TECHNOLOGY

AGILOX

NFK ADD-ONS

Obstacle Avoidance

Additional 3D sensor system in the direction of travel to increase safety in man-machine mixing mode

Signal Light Package

Light signal to increase safety in man-machine mixing mode (color: blue / green / red), additional signal lights in the fork tips (color: white / yellow)

Barcode Reader

Scanner for the detection of barcodes or QR codes

ESD Protection

Protection or discharge measure for operation in areas with ESD requirements to prevent electrostatic charging

Rubber guards

Rubber lips as dirt deflectors in the front area of the vehicle and on the fork tips

Mobile Charging Device

One mobile charger is recommended per AGILOX fleet (connection 230V / 16A)

AGILOX NFK

DRIVING PATH DESIGN

Load Carrier	A	B	C	D	E	F	G	H	I	J
Load Carrier 1200 x 800 MM 47.2 x 31.5 IN	1400 MM 55.1 IN	1500 MM 59.1 IN	1800 MM 70.9 IN	3200 MM 126 IN	1800 MM 70.9 IN	2100 MM 82.7 IN	2800 MM 110.2 IN	50 MM 2 IN	200 MM 8 IN	100 MM 4 IN

Minimal passage width

Minimal aisle width

Minimal aisle width for driving in parallel

A

B

C

Block storage

Aisle width for on-coming traffic with V-Max

Aisle width V-Max

D

E

H

*

I

Single stations

J

Turning circle

F

Minimal aisle width for oncoming traffic

G

* DISTANCE LOAD-DEPENDENT

AGILOX
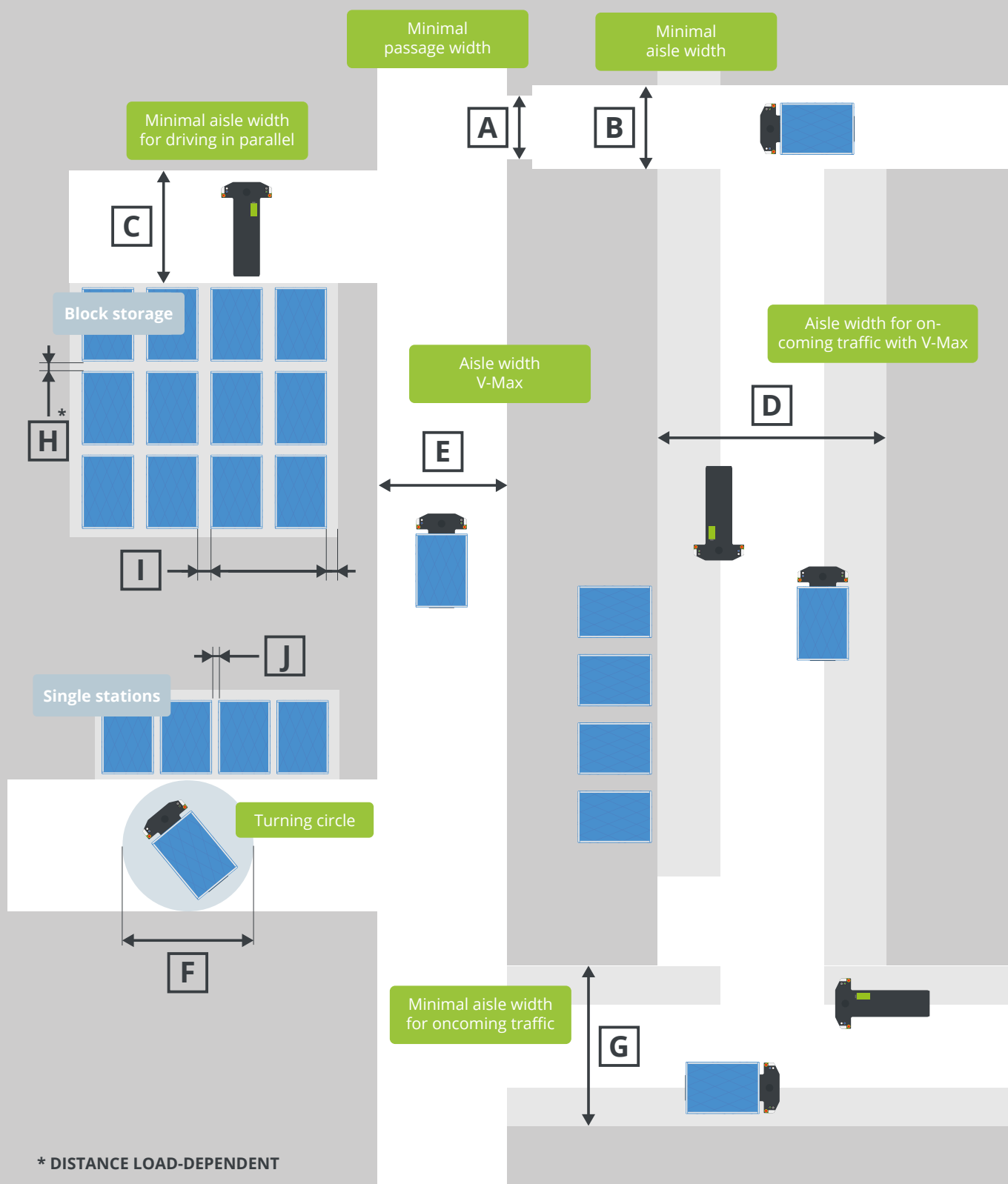
FOR HEAVIER LOADS
THE AUTONOMOUS COUNTERBALANCED
FORKLIFT OCF IS A REAL POWER MONSTER

DIMENSIONS (L x W x H)

2,784 MM × **1,200 MM** × **2,566 MM**
109.6 IN **47.3 IN** **101 IN**

AGILOX OCF with fork
1,200 mm / 47.3 IN and
obstacle avoidance

PERFORMANCE DATA

1,600 MM **63 IN**	**1,450 MM** **57.1 IN**	**1,500 KG** **3,306 LBS**	**1.4 M/S** **4.6 FT/S**
max. lifting height	max. station height *Reference: Euro pallet	max. lifting weight	max. speed

SPECIFICATIONS

3 omnidirectional drives	**Electric**	**LiFePO4 with BMS 3 min charging = 1 h running**	**3,600 kg / 7,940 lbs**
Drive system	Lift system	Battery	Unit weight

< 12 hours (1 vehicle) / 15 minutes (each additional AMR)	**CE, declaration of conformity**	**125 mm / 4.9 IN width 70 mm / 2.8 IN height**	**450 mm / 19.7 IN min. 950 mm / 37.4 IN max.**
Commissioning time	Certification	Fork dimensions	Overall fork width

MAXIMUM EFFICIENCY
ALL PRODUCTS WITH
THE PROVEN AGILOX
X-SWARM TECHNOLOGY

OCF VARIATIONS

OCF 1400

AGILOX OCF base vehicle with lifting forks in length variation 1,400 mm

Fork length 1,400 mm
max. lifting weight 1,500 kg
max. lifting height 1,600 mm
max. station height 1,450 mm

OCF LC

AGILOX OCF base vehicle with reduced lifting mast height and max. lifting height of 1,200 mm

Fork length 1,200 mm
max. lifting weight 1,500 kg
max. lifting height 1,200 mm
max. station height 1,050 mm

OCF ADD-ONS

Barcode Reader

Scanner for the detection of barcodes or QR codes

Mobile Charging Device

One mobile charger is recommended per AGILOX fleet (connection 230V / 16A)

OCF Lifting Aids

Standard Stationary Charging Station

Stationary charging station for the AGILOX OCF (connection 400V / 16A)

Quick Stationary Charging Station

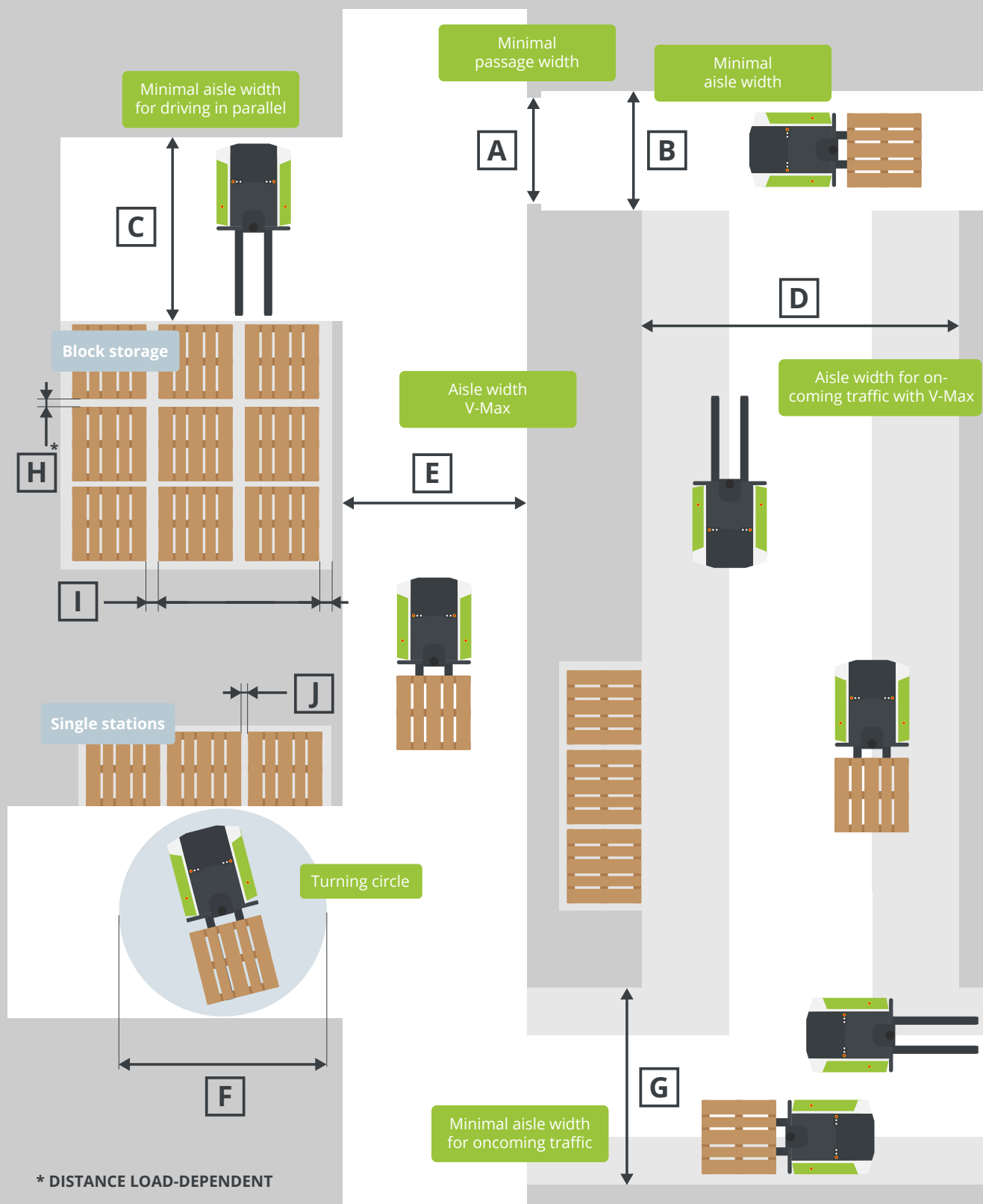Stationary fast charging station for the AGILOX OCF (connection 400V / 32A)

Obstacle Avoidance

3D sensor system in the direction of travel to increase safety in man-machine mixing mode

AGILOX OCF
DRIVING PATH DESIGN

Load Carrier	A	B	C	D	E	F	G	H	I	J
Pallet 1200 x 1200 MM 47.2 x 47.2 IN	1700 MM 66.9 IN	1900 MM 74.8 IN	3200 MM 126 IN	5000 MM 196.9 IN	2700 MM 106.3 IN	3500 MM 137.8 IN	3800 MM 149.6 IN	100 MM 4 IN	200 MM 7.9 IN	100 MM 4 IN

Minimal passage width — A

Minimal aisle width — B

Minimal aisle width for driving in parallel — C

Block storage

Aisle width V-Max — E

Aisle width for on-coming traffic with V-Max — D

Single stations

Turning circle

Minimal aisle width for oncoming traffic — G

F

H *

I

J

* DISTANCE LOAD-DEPENDENT

AGILOX

OMNIDIRECTIONAL DOLLY MOVER MADE FOR INTELLIGENT TRANSPORTS OF SMALL LOAD CARRIERS

DIMENSIONS (L x W x H)

1,095 MM × **400 MM** × **1,235 MM**
43.1 IN   **15.8 IN**   **48.6 IN**

PERFORMANCE DATA

250 MM   **300 KG**   **1.4 M/S**
9.8 IN   **661 LBS**   **4.6 FT/S**

max. lifting height   max. lifting weight   max. speed

SPECIFICATIONS

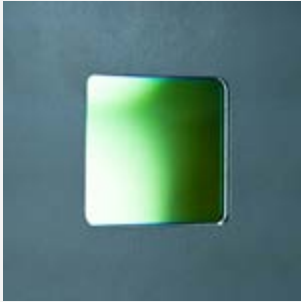| **2 omnidirectional drives** | **Single electric spindles** | **LiFePO4 with BMS 3 min charging = 1 h running** | **approx. 160 kg / 352 lbs** |
Drive system	Lift system	Battery	Unit weight
< 12 hours (1 vehicle) / 15 minutes (each additional AMR)	**CE, declaration of conformity**	**205 mm / 8.1 IN**	**95 mm / 3.8 IN**
Commissioning time	Certification	Fork width	Fork height

MAXIMUM EFFICIENCY

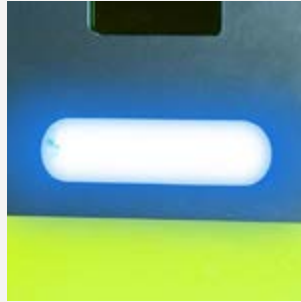# ALL PRODUCTS WITH THE PROVEN AGILOX X-SWARM TECHNOLOGY

AGILOX

ODM ADD-ONS

Obstacle Avoidance

Additional 3D sensor system in the direction of travel to increase safety in man-machine mixing mode

Signal Light Package

Light signal to increase safety in man-machine mixing mode (color: blue / green / red), additional signal lights in the fork tips (color: white / yellow)

Barcode Reader

Scanner for the detection of barcodes or QR codes

Mobile Charging Device

One mobile charger is recommended per AGILOX fleet (connection 230V / 16A)

ESD Protection

Protection or discharge measure for operation in areas with ESD requirements to prevent electrostatic charging

AGILOX ODM

DRIVING PATH DESIGN

Load Carrier	A	B	C	D	E	F	G
Dolly 600 x 400 MM 23.6 x 15.7 IN	900 MM 35.4 IN	1300 MM 51.2 IN	2400 MM 94.5 IN	1400 MM 55.1 IN	1600 MM 63 IN	1600 MM 63 IN	50 MM 2 IN

Minimal aisle width

A

Minimal aisle width for driving in parallel

B

Aisle width for on-coming traffic with V-Max

C

Aisle width V-Max

G

D

Turning circle

E

Minimal aisle width for oncoming traffic

F
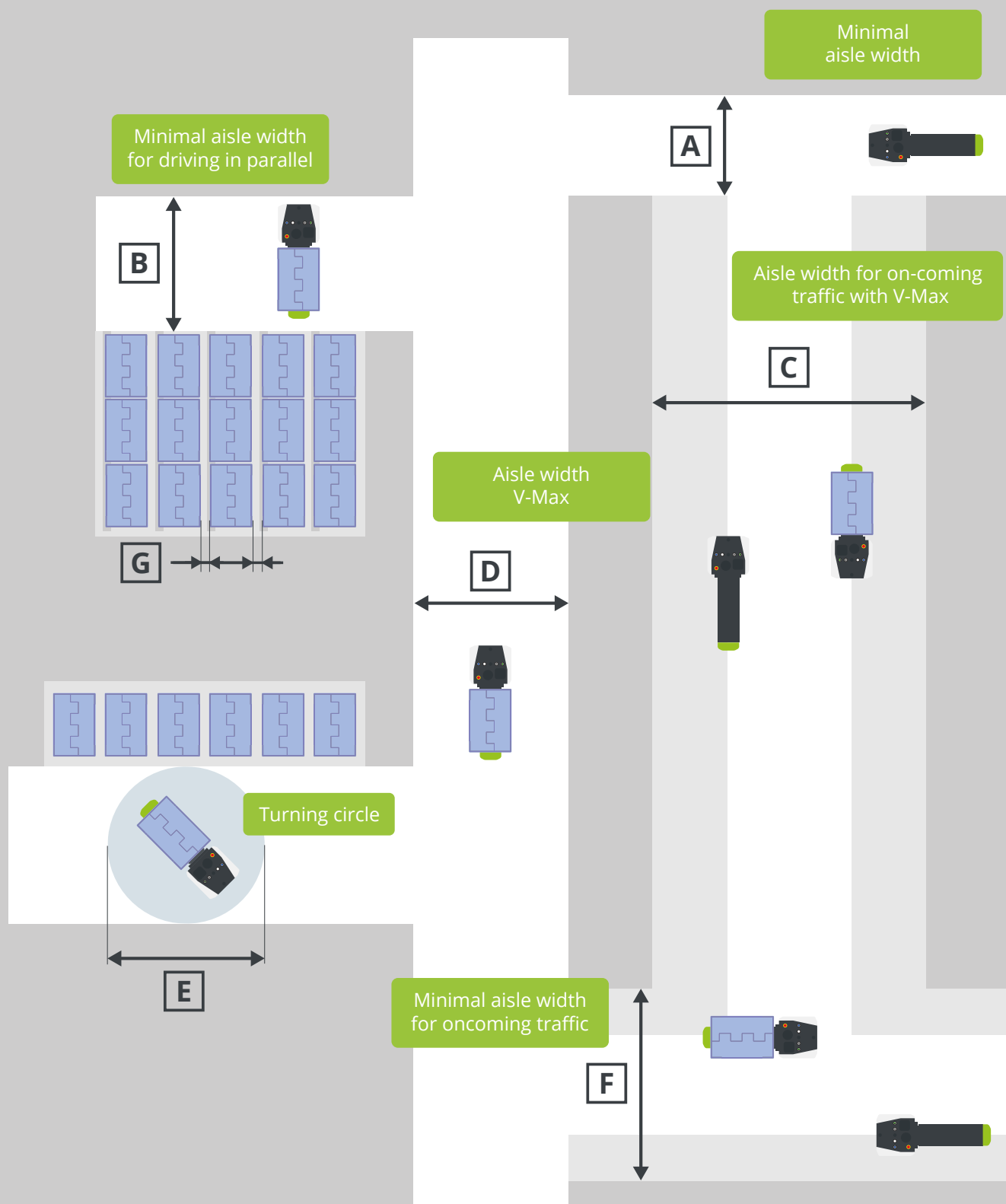
AGILOX

WITH THE AGILOX BOX CARRIER, BOXES AND TRAYS CAN BE TRANSPORTED EFFORTLESSLY

BOX CARRIER

The AGILOX BCO (Box Carrier) is an additional module that the AGILOX ONE can hold like a Euro pallet. Power and controls are transmitted via CAN bus and the connection is made automatically – no human intervention is necessary to complete the retooling process. The upper part standard consists of two belt conveyors. On request, the conveyor technology can be expanded to up to eight conveyors on four levels.

DIMENSIONS (L x W x H)

1,161 MM × **800 MM** × **250 MM**
45.7 IN **31.5 IN** **9.8 IN**

LOAD CARRIER

55 KG **400 MM** **600 MM**
121 LBS **15.7 IN** **23.6 IN**
max. box weight | max. box width | max. box length

DELIVERY HEIGHT

720 MM **1,210 MM**
28.3 IN **47.6 IN**
max. station height single scissor lift | max. station height double scissor lift

Box Carrier single level with belt conveyor

MAXIMUM EFFICIENCY
ALL PRODUCTS WITH THE PROVEN AGILOX X-SWARM TECHNOLOGY

AGILOX

VARIATION BCO

1 to 4 levels
Number of levels

Height of the levels individually designable
Level height

Between 2 and 8 conveyors
Number of conveyors

Roll or belt conveyor
Conveyor type

Integrated scale
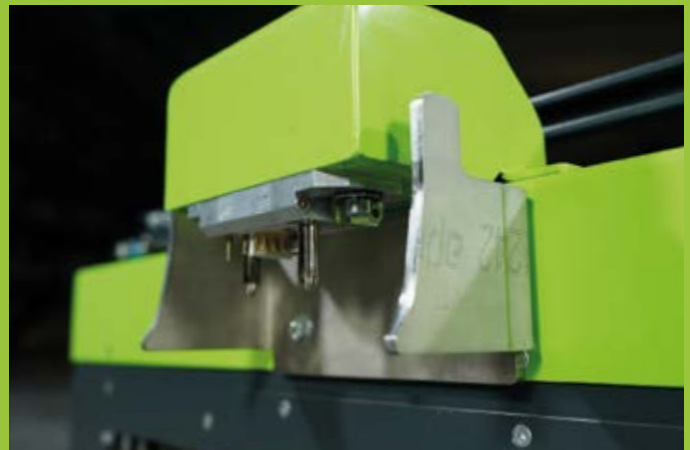Optional add-on

Box Carrier two levels with roll conveyor

CONNECTOR ONE / BCO

ONE connector for BCO

Connector BCO

AGILOX

THE AGILOX IO BOX MAKES THE COMMUNICATION WITH PERIPHERAL DEVICES POSSIBLE

AGILOX IO

The AGILOX IO is an industrial control system (optionally Beckhoff or Siemens) with potential-free relay outputs and digital inputs (24VDC), which is connected to the AGILOX network. It can be used as an interface with the system operator's automation world and connects fieldbus systems and the IOs with the AGILOX network to ensure the required data exchange.

Beckhoff

Siemens

StandardSI 14/10   StandardBE 12/6   MiniSI 6/4

Type	StandardSi 14/10	StandardBE 12/6	MiniSI 6/4
Art.-Nr.	900008	900006	900001
PLC Manufacturer	Siemens	Beckhoff	Siemens
Control Cabinet	760 x 760 x 300 mm (WxHxD)	400 x 300 x 155 mm (WxHxD)	254 x 180 x 111 mm (WxHxD)
Input Count	14	12	6
Output Count	10	6	4
Output Characteristics	potential-free	potential-free	potential-free
I/O Extension Possible	max. 7 x IO Extension SI 16/16	No	No
Network Connection	Ethernet	Ethernet	Ethernet
Decentralized IOs possible	No	No	No
Assembly and Wiring	by customer	by customer	by customer
Required Power Supply	110 - 230 VAC	110 - 230 VAC	110 - 230 VAC

MAXIMUM EFFICIENCY
## ALL PRODUCTS WITH THE PROVEN AGILOX X-SWARM TECHNOLOGY

![AGILOX logo]

AGILOX IPC - GATEWAY APPLIANCE

AGILOX swarms do not need a master computer, the vehicles communicate with each other via WLAN and via this path they also communicate with higher-level IT systems (e.g. ERP, WMS, MES). In order to provide a permanently available contact person for these higher-level systems, who can also be reached via Ethernet, there is the Gateway Appliance. This instance consists of an industrial PC running the AGILOX Core Software. This means that orders from higher-level systems can also be transferred to the AGILOX system if, for example, all AGILOX vehicles are switched off or no WLAN is available at the moment.

IPC

Type	Simple IPC
Art.-Nr.	900017
PLC Manufacturer	-
Control Cabinet	No
Input Count	-
Output Count	-
Output Characteristics	-
I/O Extension Possible	No
Network Connection	Ethernet + WiFi
Decentralized IOs possible	No
Assembly and Wiring	by customer
Required Power Supply	230V
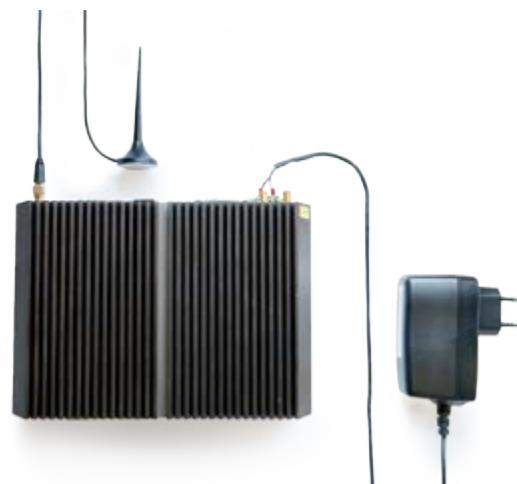
AGILOX HYBRID BOX

The Hybrid Box combines the communication interface to automation units (IO Box) and IT systems (Gateway Appliance) in one control cabinet.

IPC

Beckhoff

Siemens

Type	Hybrid BE	Hybrid SI
Art.-Nr.	900018	900019
PLC Manufacturer	Beckhoff	Siemens
Control Cabinet	400 x 800 x 300mm (WxHxD)	760 x 760 x 300mm (WxHxD)
Input Count	12	14
Output Count	6	10
Output Characteristics	potential-free	potential-free
I/O Extension Possible	No	max. 7xIO Extension SI 16/16
Network Connection	Ethernet + WiFi	Ethernet + WiFi
Decentralized IOs possible	No	No
Assembly and Wiring	by customer	by customer
Required Power Supply	110V-230V	110V-230V

OTHER IO BOXES

Type	SimpleBE 12/6	SimpleBE 32/8	SimpleBE 128/32
Art.-Nr.	900002	900003	900004
PLC Manufacturer	Beckhoff	Beckhoff	Beckhoff
Control Cabinet	No	No	No
Input Count	12	32	128
Output Count	6	8	32
Output Characteristics	potential-free	potential-free	non potential-free
I/O Extension Possible	No	No	No
Network Connection	Ethernet	Ethernet	Ethernet
Decentralized IOs possible	No	No	No
Assembly and Wiring	by customer	by customer	by customer
Required Power Supply	24VDC/4A	24VDC/4A	24VDC/4A

Type	SimpleSI 14/10	StandardBE 128/32	StandardBE WiFi 12/6
Art.-Nr.	900005	900007	900009
PLC Manufacturer	Siemens	Beckhoff	Beckhoff
Control Cabinet	No	600 x 380 x 210 mm (WxHxD)	600 x 380 x 210 mm (WxHxD)
Input Count	14	128	12
Output Count	10	32	6
Output Characteristics	potential-free	non potential-free	potential-free
I/O Extension Possible	max. 7 x IO Extension SI 16/16	No	No
Network Connection	Ethernet	Ethernet	Ethernet + WiFi
Decentralized IOs possible	No	No	No
Assembly and Wiring	by customer	by customer	by customer
Required Power Supply	24VDC/4A	110V-230V	110V-230V

Type	StandardSI WiFi 14/10	Decentral BE 8/4
Art.-Nr.	900010	900011
PLC Manufacturer	Siemens	Beckhoff
Control Cabinet	760 x 760 x 300 mm (WxHxD)	400 x 300 x 155 mm (WxHxD)
Input Count	14	8
Output Count	10	4
Output Characteristics	potential-free	potential-free
I/O Extension Possible	max. 7 x IO Extension SI 16/16	Beckhoff EP2338-1001
Network Connection	Ethernet	Ethernet
Decentralized IOs possible	No	max. 12 boxes with 8 digital channels each (max. 32 outputs can be used)
Assembly and Wiring	by customer	by customer
Required Power Supply	110V-230V	110V-230V

AGILOX ANALYTICS ENABLES UP-TO-THE-SECOND PERFORMANCE ANALYSIS AND THE EFFICIENCY INCREASE OF LOGISTICS PROCESSES

AGILOX ANALYTICS

Collecting various process data and analyzing it is a key factor in optimizing operations in the material handling industry - especially when it can be done easily via a browser without any additional effort. As logistics processes are automated by AGILOX vehicles, the volume of data increases, and with it the opportunity to make use of it. In AGILOX Analytics, the collected data is compiled and clearly presented. While our vehicles directly increase efficiency in operation, our private cloud-based data analysis platform AGILOX Analytics offers the possibility to do performance analysis as well as to get software support for the complete AGILOX fleet.

Guaranteed data safety

Because data security plays an essential role, AGILOX relies on a sophisticated security concept with a certified data center (ISO 27001). Data encryption to the highest security standards and a private connection to our cloud-based analytics platform, where the data is processed, guarantee the protection of customer data from unauthorized access and thus maximum data security.

Detailed data reports

AGILOX Analytics offers the possibility to analyze logistics processes as well as the condition of vehicles. More than 3.5 billion data points generated per vehicle in a year enable near real-time performance analysis down to the second over the entire service life. Sophisticated and detailed reports as well as an ongoing expansion of functions accommodate profound performance analysis. As a result, the productivity and efficiency of the entire logistics and production processes can be continuously improved, and forward-looking strategic decisions can be made. Browser-based access to the data is possible anytime and anywhere - whether via PC, tablet or smartphone.

AGILOX

SYSTEM OVERVIEW

The use of an AGILOX AMR is possible without adjustments and additions to the IT infrastructure. Thanks to swarm intelligence, neither a software nor a separate server for a master computer must be installed. AGILOX' plug and perform quality only requires customer provided WiFi and a 3-phase AC power connection. Open interfaces also allow the system to be flexibly and dynamically connected with the environment. Since navigation takes place without additional infrastructure, the system adapts to its changing environment almost automatically and adheres to the highest security standards.

AGILOX Analytics

4G APN Tunnel

APN

Customer WIFI

Gateway Appliance

CUSTOMER ERP / WMS

AGILOX Swarm

AGILOX IO

AGILOX Charging Device

Mobile Device

HMI
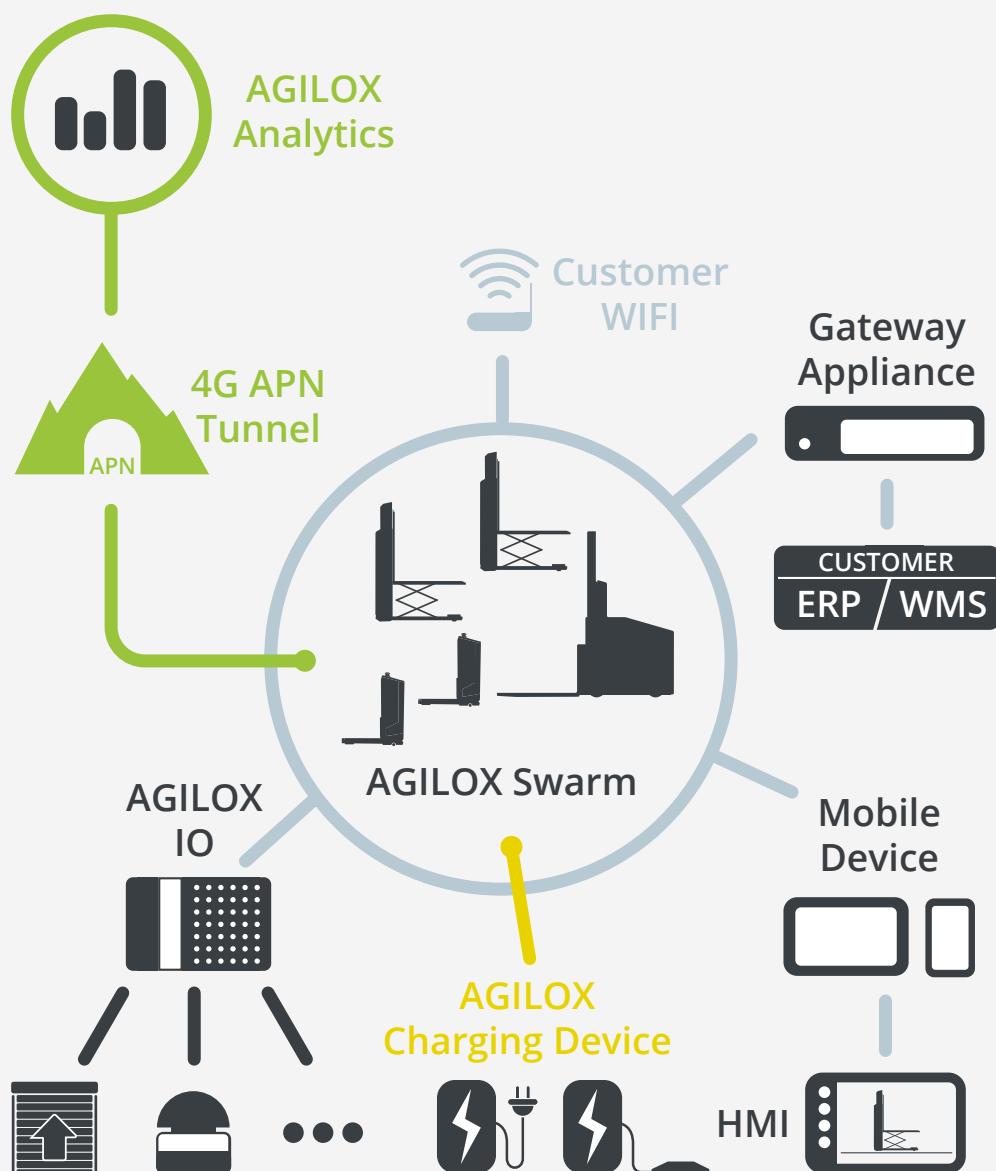
AGILOX Charging

24/7 operations without changing the battery. 60 minutes of operation - 3 minutes to charge.

Customer WIFI

Customer-provided WiFi is required in order for vehicles to communicate with each other.

Customer ERP / WMS

Customer systems (e.g. ERP, WMS, MES, etc.) can be connected via the AGILOX JSON API.

AGILOX Swarm

Swarm Intelligence underpins the AGILOX fleet's navigation.

Mobile Device

The AMRs are controlled via mobile devices (e.g. smartphone, tablet, etc.) with browser access.

AGILOX HMI

The HMI is mapped in the web browser and is always available to interact with AGILOX vehicles.

AGILOX IO Box

The IO Box assists the customer in connecting their existing infrastructure (e.g. roller doors, fire alarm systems) with the AGILOX network.

AGILOX Analytics

Access to the most important KPIs and data anytime and anywhere.

OUR CUTTING-EDGE TECHNOLOGY IS YOUR ADVANTAGE

Explained on the basis of a transport order by our AGILOX ONE

ORDER Transport good from A to B

AUTONOMOUS ROUTING

BYPASSING OBSTACLES

HIGHEST SAFETY STANDARDS

CALCULATION OF ALTERNATIVE ROUTES

3 MIN CHARGING = 1 HOUR OPERATION

CONTOUR-BASED NAVIGATION

ROTATE AT STANDSTILL

EXPANSION IN A FEW MINUTES

PICKING UP OF INACCURATELY PLACED PALLETS

PARALLEL MOVEMENT

PRODUCTION HALL