**CREFORM AGVs** are easily configurable, independently controlled units with a self-sufficient power supply by means of gel batteries. The AGVs have a modular unit construction and are easy to program for the optimization of customer’s material flow.

**Easy configurable and extendable:**
Magnetic tape for guidance and command orders mean simple installation without special floor treatment. Therefore simple adaptations to changes in production processes are possible. If a traffic control for managing the priority at junctions is used, AGVs and driving loops can simply be added to the system later on.

**CREFORM is strong in customer service:**
- Speedy response time
- Technical project planning
- Complete service: Installation of AGV driving course and equipment, plus monitoring of the system at the start of real time production
- Maintenance of AGV system on request
- Hotline support for problems
**AGV-A50034**
**CREFORM Standard crawler-AGV**

### Technical data

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Speed:</strong></td>
<td>Standard 4 / 30 / 50 m/min</td>
</tr>
<tr>
<td><strong>Tracking:</strong></td>
<td>Magnetic</td>
</tr>
<tr>
<td><strong>Tractive power:</strong></td>
<td>17 kg</td>
</tr>
<tr>
<td><strong>Max load capacity:</strong></td>
<td>110 kg</td>
</tr>
<tr>
<td><strong>Voltage:</strong></td>
<td>24 Volt DC</td>
</tr>
<tr>
<td><strong>Battery number:</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Battery type:</strong></td>
<td>Banner Gel 100 Ah</td>
</tr>
<tr>
<td><strong>Service life:</strong></td>
<td>8 Hours (with fully charged battery)</td>
</tr>
<tr>
<td><strong>Total weight:</strong></td>
<td>230 kg including battery</td>
</tr>
<tr>
<td><strong>Dimensions LxWxH:</strong></td>
<td>1312 x 560 x 450 mm</td>
</tr>
</tbody>
</table>
AGV Brain

The SIEMENS PLC represents the brain of the AGV. Every AGV is SPS programmed and decides autonomously how to interact with its' environment. Without the use of a traffic control the AGV detects and executes commands placed along the travelling route. With a traffic control it behaves as slave and drives only when getting the permission.

Specification:

- SIEMENS PLC S7-224XP
- SIEMENS TD400, 4 rows with blue background colour and white text

Traffic Control

The CREFORM Traffic control manages priority at junctions and is the heart of a customized AGV system. Communication with AGVs via W-LAN.

- SIEMENS S7-300 Series
- Touch display MP277 10”
- Handles up to 30 AGVs
- Monitoring AGVs in real time for current position and status
- Analyzing function: event logging
- Available: Information-Share-Function. System information is written by Traffic Control on provided server.
RFID - Course Control System

If a traffic control is used, the AGV is equipped with RFID antenna for reading command transponders along the way.

- Benefits:
  - Safe command detection in slow, middle and high speed
  - Big command range
  - Necessary for AGV monitoring

Safety and Indication System

The CREFORM AGV matches the latest CE requirements with original part safety devices. Performance Level D.

- SICK Security Laser Scanner module
  - Standard person security with 3 changeable detection setups
  - Can be upgraded to a module with 16 changeable detection setups
  - Each Setup consists of Warning Zone (slows down the AGV) and Emergency Zone (stops the AGV)
  - With this big range of security zone setups every customer specified travelling route can be covered

- Indicator light
  - Yellow and Red light show 9 different statues of AGV driving unit

- Direction indicators notify which path the AGV takes at junctions

- Melody Box with selectable tones and regulable volume.

- Operator speed setting

The multimonitor is connected to the AGV driving unit. With this device three predefined speeds, slow speed, middle speed and maximum speed, can easily be set by the operator to suit customer's requirements.
AGV driving Unit

The driving unit module is mounted under the AGV.

- Exchangable AGV driving unit with different specification:
  - 50 m/min and 340 kg total weight
  - 35 m/min and 460 kg total weight
  - 25 m/min and 680 kg total weight

- Easy dismantling
- Easy release function
  - Hand lever disengages the AGV driving wheel
  - Powerless, simple and inexpensive

Battery Quick Exchange System

The AGV is equipped with a battery cassette in the back which contains quick exchange power connectors.

- Ergonomic:
  - No wires
  - No lose connectors which have to be searched
  - Power Connection is made by inserting the battery cassette
  - Ball bearings for reduced push and pull effort
  - Battery cart eliminates lifting or carrying the batteries
AGV-M50066 STD
Customised AGV solution

AGV-Description
AGV load carrier with three speed levels and magnetic guidance for efficient material transport
Driving in four directions possible! Forward, backward and sideward

Single components
- AGV drive unit FH-M50066 MC2
- Safety box M-Typ 24 Volt SICK
- Bicolour optical warning detector
- SICK S-300 with 4 zones
- RFID Antenna for move commands
- Battery charge display

Technical data

<table>
<thead>
<tr>
<th align="right">Speed:</th>
<th align="right">Standard 4 / 30 / 50 m/min</th>
</tr>
</thead>
<tbody>
<tr>
<td align="right">Tracking:</td>
<td align="right">Magnetic</td>
</tr>
<tr>
<td align="right">Tractive power:</td>
<td align="right">29 kg</td>
</tr>
<tr>
<td align="right">Trailing load*:</td>
<td align="right">450 kg</td>
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<tr>
<td align="right">Max load capacity:</td>
<td align="right">300 kg</td>
</tr>
<tr>
<td align="right">Voltage:</td>
<td align="right">24 Volt DC</td>
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<tr>
<td align="right">Battery number:</td>
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<tr>
<td align="right">Battery type:</td>
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<tr>
<td align="right">Service life:</td>
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</tr>
<tr>
<td align="right">Total weight:</td>
<td align="right">250 kg including battery</td>
</tr>
<tr>
<td align="right">Dimensions LxWxH:</td>
<td align="right">On request</td>
</tr>
</tbody>
</table>

* at 1% gradient based on polyurethane wheels and a flat industrial floor.
Custom AGV Examples

AGV with 24 volts scissor lift table and rotary plate for mobile assembly with automatic elevation adjustment by RFID

Forward and reverse driving AGV for front transfer of replenished and empty transport boxes

Mobile assembly unit for cockpit production

Tugger type AGV with train-carts
The system was invented in 1965 by Yazaki Kako. Main target was to develop a material handling system for Toyota which should allow Kaizen (constant improvement) due to flexibility, simpleness and individual planning.

The **CREFORM Technik GmbH** (Germany, founded in 1999) is a joint venture of Yazaki Kako Corporation (Shizuoka, Japan) and the subsidiary **CREFORM** Corporation (Greer, USA).

From the headquarter in Baunatal, Germany, **CREFORM** Technik GmbH supplies customers all over Europe and parts of Asia.

Stored standard parts ordered in the morning are shipped out on the same day.