

VisionNav  
Robotics

FULL SPECTRUM  
LOGISTICS AUTOMATION

# VNR16

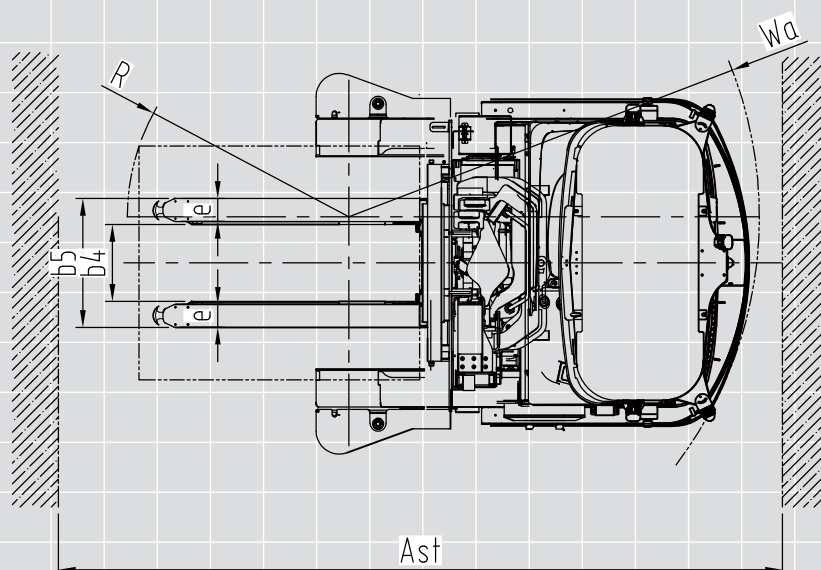
REACH TRUCK AGV



B56.5



[www.visionnav.com](http://www.visionnav.com)

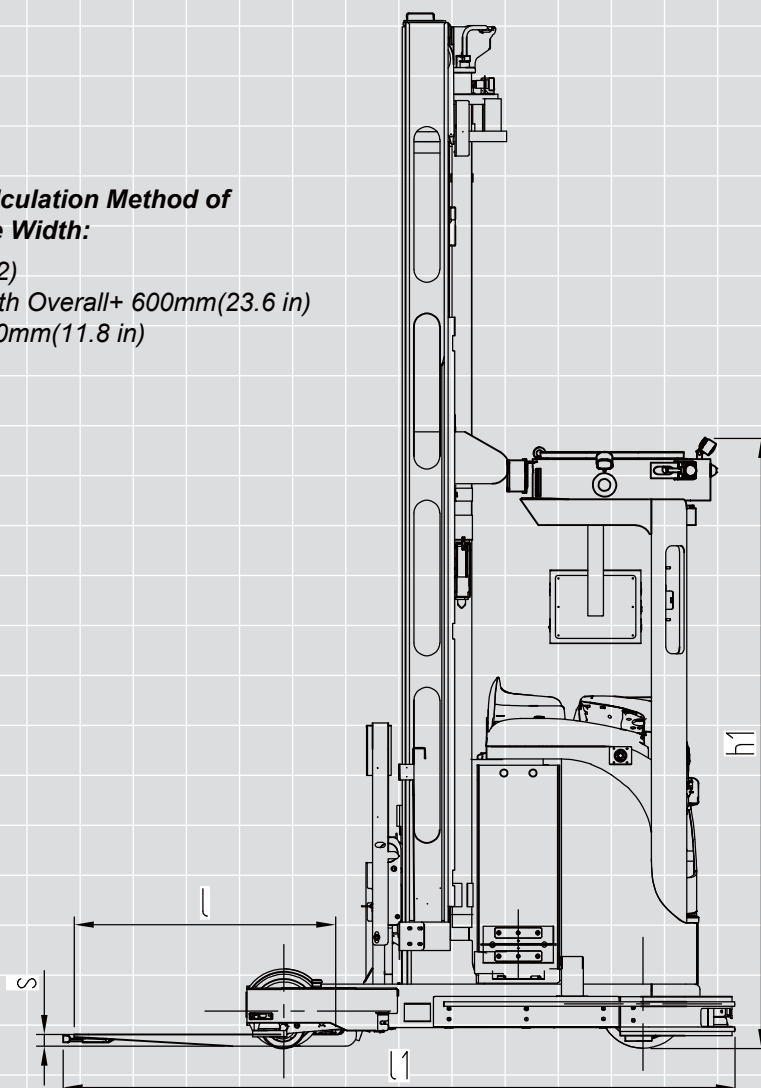


**Recommended Calculation Method of  
Min. Stacking Aisle Width:**

$$Ast = \max(Ast1, Ast2)$$

$$Ast1 = \text{Vehicle Length Overall} + 600\text{mm}(23.6 \text{ in})$$

$$Ast2 = Wa + R + 300\text{mm}(11.8 \text{ in})$$



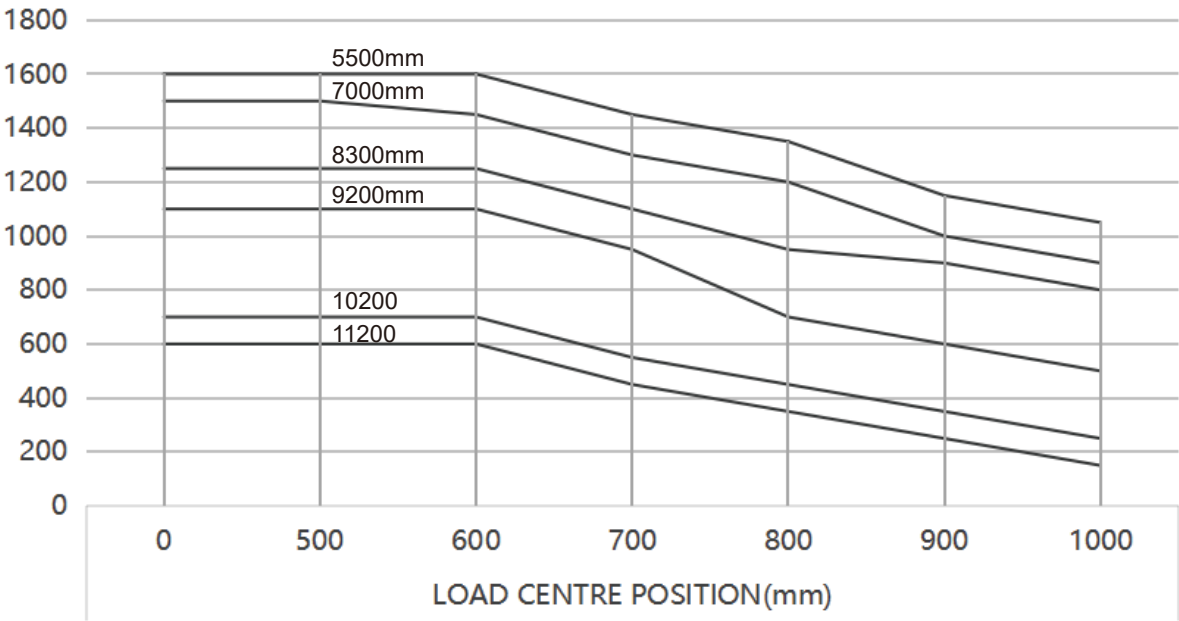
|                            |    |                                          | Metric         | Imperial                                             |                                       |
|----------------------------|----|------------------------------------------|----------------|------------------------------------------------------|---------------------------------------|
| POSITIONING AND PERCEPTION | 1  | Positioning Method                       |                | 3D SLAM                                              |                                       |
|                            | 2  | Perception Method                        |                | 3D Lidar                                             |                                       |
|                            | 3  | Positioning Accuracy                     |                | ±10mm/±0.5°                                          | ±0.39in/±0.5°                         |
|                            | 4  | Pick-up Adaptability                     |                | ±100mm/±10°                                          | ±3.94in/±10°                          |
| GENERAL SPECIFICATIONS     | 5  | Operation Mode                           |                | Automatic / Manual Seated                            |                                       |
|                            | 6  | Weight                                   |                | 3190kg                                               | 7032.75lb                             |
|                            | 7  | Overall Dimensions                       | Reach Retracts | 2651x1635x2476mm                                     | 104.37x64.37x97.48in                  |
|                            |    |                                          | Reach Extends  | 3185x1635x2476mm                                     | 125.39x64.37x97.48in                  |
|                            | 8  | Fork Dimensions (l/e/s, excl. slots)     |                | 1115x100x45mm                                        | 40.90x3.94x1.77in                     |
|                            | 9  | Optional Fork Lengths                    |                | 1265/1365/1465/1565mm                                | 49.80/53.74/57.68/61.61in             |
|                            | 10 | Width Across Forks                       |                | 710mm                                                | 27.95in                               |
|                            | 11 | Width Inside Straddle                    |                | 486mm                                                | 19.13in                               |
|                            | 12 | Reach                                    |                | 534mm                                                | 21.02in                               |
|                            | 13 | Max. Fork Lifting Height                 |                | 5500mm,see Mast Chart for more options               | 216in,see Mast Chart for more options |
|                            | 14 | Rated Load Capacity                      |                | 1600kg                                               | 3527.40lb                             |
|                            | 15 | Load Center                              |                | 600mm                                                | 23.62in                               |
|                            | 16 | Min. Turning Radius                      |                | 1800mm                                               | 70.87in                               |
|                            | 17 | Supporting Legs Height                   |                | 310mm                                                | 13.38in                               |
|                            | 18 | Shift                                    |                | ±80mm                                                | ±3.15in                               |
| BATTERY                    | 19 | Battery Type                             |                | Lithium Iron Phosphate (LiFePO <sub>4</sub> )        |                                       |
|                            | 20 | Battery Voltage/Capacity                 |                | 48V/400Ah                                            |                                       |
|                            | 21 | Charging Mode                            |                | Manual/ Automatic Charging                           |                                       |
| PERFORMANCE                | 22 | Max Forward Speed (Loaded/Empty)         |                | 2.0m/s, 2.0m/s                                       | 4.47mph , 4.47mph                     |
|                            | 23 | Max Reverse Speed (Loaded/Empty)         |                | 0.6m/s, 0.6m/s                                       | 1.34mph , 1.34mph                     |
|                            | 24 | Max Turning Forward Speed (Loaded/Empty) |                | 0.3m/s, 0.6m/s                                       | 0.67mph , 1.34mph                     |
|                            | 25 | Max Turning Reverse Speed (Loaded/Empty) |                | 0.3m/s, 0.6m/s                                       | 0.67mph , 1.34mph                     |
|                            | 26 | Max. Fork Lifting Speed (Loaded/Empty)   |                | 400mm/s, 660mm/s                                     | 0.89mph , 1.48mph                     |
|                            | 27 | Max. Fork Lowering Speed (Loaded/Empty)  |                | 550mm/s, 450mm/s                                     | 1.23mph , 1.01mph                     |
| DEPLOYMENT ENVIRONMENT     | 28 | Min. Stacking Aisle Width                |                | 3250mm                                               | 127.95in                              |
|                            | 29 | Min. Turning Aisle Width                 |                | 2500mm                                               | 98.43in                               |
|                            | 30 | Ambient Temperature                      |                | -5°C~ 40°C                                           | 23°F~ 104°F                           |
|                            | 31 | Ambient Humidity                         |                | 20%~90%                                              |                                       |
|                            | 32 | Ground Flatness                          |                | ±3mm/m²                                              | ±0.04in/m²                            |
|                            | 33 | Max. Climbing Capability                 |                | 10%(6°), 10%(6°)                                     |                                       |
|                            | 34 | Max. Gap Width                           |                | 30mm                                                 | 1.18in                                |
|                            | 35 | Max. Obstacle Height                     |                | 10mm                                                 | 0.39in                                |
| SAFETY PROTECTION          | 36 | Laser Scanning Height                    |                | 100mm                                                | 0.39in                                |
|                            | 37 | Forward Safety                           |                | 3D Lidar+Safety Laser Scanner+ Anti-Collision Bumper |                                       |
|                            | 38 | Reverse Safety                           |                | Safety Laser Scanner+ Contact Sensor                 |                                       |
|                            | 39 | Top Safety                               |                | 3D Lidar                                             |                                       |
|                            | 40 | Side Safety                              |                | 3D Lidar+Safety Laser Scanner+ Anti-Collision Bumper |                                       |
|                            | 41 | Others                                   |                | Emergency Stop Button + Acousto-Optic Alarm          |                                       |

\* Performance Specifications: Specifications are based on the model equipped with a 216 in (5500 mm) triple telescopic mast, a 1219x1016mm load size, and with across forks on width.

Appendix I: Mast Chart

| DIMENSIONS | Options |                             | Option 1         |       | Option 2         |       | Option 3         |       | Option 4         |       | Option 5         |       | Option 6         |       |
|------------|---------|-----------------------------|------------------|-------|------------------|-------|------------------|-------|------------------|-------|------------------|-------|------------------|-------|
|            | 1       | Mast stages                 | Three-stage mast |       | Three-stage mast |       | Three-stage mast |       | Three-stage mast |       | Three-stage mast |       | Three-stage mast |       |
|            | 2       | Lifting height              | 5500mm           | 216in | 7000mm           | 275in | 8300mm           | 327in | 9200mm           | 362in | 10200mm          | 401in | 11200mm          | 441in |
|            | 3       | Mast deployment height      | 6995mm           | 275in | 8840mm           | 348in | 9840mm           | 387in | 10740mm          | 423in | 11940mm          | 470in | 12740mm          | 502in |
|            | 4       | Gantry retracted dimensions | 2910mm           | 115in | 3430mm           | 135in | 3930mm           | 155in | 3930mm           | 155in | 4430mm           | 174in | 4930mm           | 194in |

Appendix II: Load Chart  
(kg)



Additional Inforamtion

- 1.Fork Accessories: Customizable fork length, fork width.
- 2.Optional Accessories:Battery Trolley, Cargo Overheight Detection, UWB Kit, Bar Code Scanner, RFID Reader, Dashcam, among others.
- 3.Load Capacity variation: Optional masts, attachments, longer load dimensions or higher lifting heights may result in a derating of capacity.