

**Confidential \*\*\*AGV/AGC VENDOR EVALUATION \*\*\* Confidential**

AGVS QUESTION	VENDOR RESPONSE – [NAME]
<p><b>1. AGV/AGC NAVIGATION</b></p> <p>Please explain how your non-wire (wireless) AGV navigation technology works and when it was introduced.</p>	
<p><b>2. REQUIRED FLOOR HARDWARE</b></p> <p>Specifically, list hardware controls which are part of the floor path network. Include the quantity of guidepath wire energizers, traffic controllers, routing controllers and any floor code markers (wire, plate, magnetic or responder type).</p>	
<p><b>3. INERTIAL NAVIGATION REFERENCE POINTS</b></p> <p>If you offer inertial based wireless AGV navigation, please explain what type of markers are used in the floor and typical spacing.</p>	
<p><b>4. DESTINATION &amp; ACTION TRIGGERS</b></p> <p>Please explain how AGV/AGC destinations and actions are defined with your technology.</p>	
<p><b>5. AGV/AGC ROUTING CONTROL</b></p> <p>Please explain how <u>AGVS vehicle routing</u> is accomplished in your proposed system? Indicate the controls necessary in the floor, on walls or columns or on the vehicle necessary to accomplish vehicle routing throughout the system.</p> <div data-bbox="284 1596 527 1816" data-label="Diagram"> </div>	

**6. AGV/AGC TRAFFIC CONTROL**

Please explain how vehicle traffic control is accomplished in your system? Indicate what controls are required in the floor, on walls or columns, or on the vehicle to accomplish vehicle traffic control.

**7. CONTROL SYSTEM HARDWARE**

Explain how you control system operates.

What is involved when path, station destinations or vehicles are added to the system?

What standard capabilities are built-in to your control system to interface with other control systems, networks, other automation and monitor system/vehicle status?

**8. ONBOARD AGV CONTROL PANEL CAPABILITIES**

Describe the user interface with the onboard AGV control panel. What functions are provided?

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<p><b>9. AGV/AGC DISPATCHING MODES</b></p> <p>What dispatch modes do you provide with your system and how do they work.</p>	
<p><b>10. VEHICLE REMOVAL &amp; RE-ENTRY OPERATOR PROCESS</b></p> <p>Please explain the operational steps to <u>remove</u> or <u>enter</u> a vehicle in the system in the event of a problem. Specifically, address the rules a manual operator must follow to safely remove or enter a vehicle on the system including where this may be done, what controls need to be reset or cleared, etc.</p>	
<p><b>11. MANUAL VEHICLE OPERATION</b></p> <p>Describe in detail manual operation of the vehicle off the path. Specifically, comment on how operator drives the vehicle manually.</p>	
<p><b>12. AGV/AGC COMMUNICATION SYSTEM</b></p> <p>Explain <u>communication capability to and from the vehicles for remote vehicle dispatching</u>. Is this employed in the base level operation or is it a capability which needs to be added to the system when a higher level computer management system is added?</p>	
<p><b>13. SYSTEM CHANGE PROCESS</b></p> <p>Explain steps necessary to <u>expand the system with additional vehicles and/or guidepath</u>. Specifically, what possible additional controls, rewiring or software are required to add vehicles, stops or guidepath to the base system?</p> <p>Discuss how changes are made to the AGV/AGC path:</p> <ul style="list-style-type: none"> <li>• Add/delete/modify path</li> <li>• Add/delete/change stations</li> <li>• Change vehicle routing logic</li> <li>• Change AGV actions along path</li> </ul>	

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<p>14. <b>SYSTEM MONITORING</b></p> <p>Do you have a <u>system monitoring CRT graphics display available</u>? Is it included in the proposed system price? Please explain how the terminal operates including its monitoring, recording and command issuing capabilities.</p>	
<p>15. <b>OPERATION OF MULTIPLE AGV TYPES ON SAME PATH</b></p> <p>Explain what other additional types of vehicles can be used on the same initial base guidepath with the base vehicles. Explain any additional system changes which may be necessary to accommodate different types of vehicles.</p>	
<p>16. <b>SITUATIONS REQUIRING OPERATORS TO RE-INITIALIZATION VEHICLE</b></p> <p>Is it necessary to 're-initialize' an AGV before entering it into the system after it has been manually driven? If so, explain how this is done.</p>	
<p>17. <b>PROCESS TO UPGRADE FROM OPERATOR DISPATCHING TO AUTOMATIC AGC CALL &amp; DISPATCHING CONTROL</b></p> <p>Please explain how the proposed system can be upgraded to higher level computer controls. Specifically, if a central system management control is employed in the future to <u>automatically dispatch vehicles</u>, what additional hardware or software is required to your system to interface to this higher level of control?</p>	
<p>18. <b>FINANCIAL</b></p> <p>Explain you financial condition and if you are willing to supply financial information.</p>	
<p>19. <b>COMPANY EXPERIENCE</b></p> <p><u>How many years</u> have you marketed an AGV product and how many AGV/AGC systems have you provided?</p>	

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<p>20. <b>PRODUCT MANUFACTURE</b>            Is the <u>product of your own manufacture</u>?            Are any parts licensed or procured from other sources and please explain?</p>	
<p>21. <b>VEHICLE DESIGN</b>            Please explain the construction, controls and steering mechanics of the vehicle.</p>	
<p>22. <b>MANUFACTURING LOCATION</b>            Where are your AGVs manufactured?</p>	
<p>23. <b>TECHNOLOGY OWNERSHIP AND MAIN CORPORATE LOCATION</b>            Do you own your AGV/AGC technology or do you license it from another source?            Where was your AGVS technology developed where is the corporate AGVS product group located?</p>	
<p>24. <b>PARTS &amp; SERVICE</b>            Where will parts and service originate?</p>	
<p>25. <b>MANUALS &amp; TRAINING</b>            Where does documentation and training support come from?</p>	

**QUICK 'Additional Items' CHECKLIST**

	VENDOR A	VENDOR B	VENDOR C
Are batteries and chargers included?			
24/7 Service hotline?			
Is service support through AGV/AGC OEM or through dealer/VAR?			
Is AGV/AGC supplier's core business?			
Warranty?			
Recommended spare parts?			
Acceptance test?			
Post -acceptance launch support?			
Hard copy and CD maintenance manuals?			
Free telephone support during warranty?			
What items can customer provide to save money?			
Is your system configured to support multiple vehicle operation in all path areas?			
Future expansion considerations best supported by vendor technology?			
Can you make your own system changes?			