



NIPPON KAIJI KYOKAI

TYPE APPROVAL CERTIFICATE FOR AUTOMATIC DEVICES AND EQUIPMENT

Certificate No. TA22674M

This is to certify that the undernoted product(s) has/have been approved in accordance with the requirements specified in Chapter 1, Part 7 of "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use" and the relevant Society's Rules.

This certificate is issued to

Manufacturer:	YASKAWA ELECTRIC CORPORATION, Yukuhashi Plant
Place of Manufacturing:	13-1 Nishimiyaichi 2 Chome, Yukuhashi, Fukuoka 824-8511 Japan
Product description:	Matrix Converter U1000
Model:	U1000 Series
Approval No.:	17A023
Valid until:	11 January 2028

This certificate is subject to the conditions specified in the attached sheet(s).

Issued at Tokyo on 30 November 2022.



S.Oishi
General Manager
Machinery Department

Note: The manufacturer, if desired, is requested to apply to the Society for renewal prior to the expiration date.

NIPPON KAIJI KYOKAI

Attached sheet -1/3 to the Certificate No. TA22674M

Specification & documents:

1. Particulars: Power supply: 3-phase AC 400V class,
 3-phase 380-500VAC, 50/60Hz for standard model,
 3-phase 380-480VAC, 50/60Hz for internal EMC-filter model

2. Components and reference drawings:

Application Model List: VGI-Q1701-11(Dated 2017.10.30)

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 I II III IV V VI VII VIII IX

Item	Category	Description																																																																																						
I	General Purpose Inverter																																																																																							
II	Basic Name of Inverter Series	U: U1000 Series																																																																																						
III	Regional Specification for initial software setting	A: Japan Spec. B: China Spec. C: Europe Spec. D: India Spec. U: USA Spec. T: Asia Spec.																																																																																						
IV	Rated Voltage	4: 3-phase AC 400V class 3-phase 380-500VAC, 50/60Hz for standard model 3-phase 380-480VAC, 50/60Hz for internal EMC-filter model																																																																																						
V	Customer Specification	A: Standard model (*1) E: Internal EMC-filter model																																																																																						
VI	Rated Output	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Model</th> <th>ND</th> <th>HD</th> <th rowspan="2">Customer Specification</th> </tr> <tr> <th>Rated current [A]</th> <th>Rated current [A]</th> </tr> </thead> <tbody> <tr><td>0011</td><td>11</td><td>9.6</td><td>A and E</td></tr> <tr><td>0014</td><td>14</td><td>11</td><td>A and E</td></tr> <tr><td>0021</td><td>21</td><td>14</td><td>A and E</td></tr> <tr><td>0027</td><td>27</td><td>21</td><td>A and E</td></tr> <tr><td>0034</td><td>34</td><td>27</td><td>A and E</td></tr> <tr><td>0040</td><td>40</td><td>34</td><td>A and E</td></tr> <tr><td>0052</td><td>52</td><td>40</td><td>A and E</td></tr> <tr><td>0065</td><td>65</td><td>52</td><td>A and E</td></tr> <tr><td>0077</td><td>77</td><td>65</td><td>A and E</td></tr> <tr><td>0096</td><td>96</td><td>77</td><td>A and E</td></tr> <tr><td>0124</td><td>124</td><td>96</td><td>A and E</td></tr> <tr><td>0156</td><td>156</td><td>124</td><td>A and E</td></tr> <tr><td>0180</td><td>180</td><td>156</td><td>A and E</td></tr> <tr><td>0216</td><td>216</td><td>180</td><td>A and E</td></tr> <tr><td>0240</td><td>240</td><td>216</td><td>A and E</td></tr> <tr><td>0302</td><td>302</td><td>240</td><td>A and E</td></tr> <tr><td>0361</td><td>361</td><td>302</td><td>A and E</td></tr> <tr><td>0414</td><td>414</td><td>361</td><td>A and E</td></tr> <tr><td>0477</td><td>477</td><td>414</td><td>A</td></tr> <tr><td>0590</td><td>590</td><td>477</td><td>A</td></tr> </tbody> </table>	Model	ND	HD	Customer Specification	Rated current [A]	Rated current [A]	0011	11	9.6	A and E	0014	14	11	A and E	0021	21	14	A and E	0027	27	21	A and E	0034	34	27	A and E	0040	40	34	A and E	0052	52	40	A and E	0065	65	52	A and E	0077	77	65	A and E	0096	96	77	A and E	0124	124	96	A and E	0156	156	124	A and E	0180	180	156	A and E	0216	216	180	A and E	0240	240	216	A and E	0302	302	240	A and E	0361	361	302	A and E	0414	414	361	A and E	0477	477	414	A	0590	590	477	A
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VII	Enclosure	A: IP00																																																																																						

- To be continued -

Item	Category	Description
VIII	Countermeasure for Environment Resistance	A: Standard
		B to Z: Codes correspond to the combination of additional countermeasures such as
		moisture resistant, dustproof, vibration proof,
		gas resistant, humidity resistant, oil resistant.
IX	Yaskawa internal design version	Put any alphabet for a design version

(ND: Normal duty use, HD: Heavy duty use)

(*1) Be sure to use a designated stand-alone EMC filter for Customer Specification A, standard model.

Main Component List: VGI-Q1612-11(Dated 2017.01.17)

List of Drawings: VGI-Q1701-12 (Dated 2017.01.25)

3. Documentation and Test Reports:

Test Plan (Dated 2017.07.24)

Test Sample Selection: NSH-16039-03 (Revised 2017.08.10)

Matrix Converter U1000 Test Report: VGI-T1710-04 (Dated 2017.10.10), VGI-T1709-05, VGI-T1709-06, VGI-T1709-08, VGI-T1709-09, VGI-T1709-10, VGI-T1709-11, VGI-T1709-12, VGI-T1709-13, VGI-T1709-14, VGI-T1709-15, VGI-T1709-16, VGI-T1709-17, VGI-T1709-18, VGI-T1709-19, VGI-T1709-20, VGI-T1709-21, VGI-T1709-22, VGI-T1709-24

Test Report, TUV Rheinland Japan Solar Energy Assessment Center: 50089828-001 (Dated 2017.09.20), VGI-T1709-07, VGI-T1709-23, VGI-T1709-25, VGI-T1709-26

EMC Test Report, KEC Electronic Industry Development Center Testing Division: A-241-16-E (Dated 2017.08.30), A-242-16-E (Dated 2017.08.30), A-243-16-E (Dated 2017.08.30)

EMC Test Report, IPS Corporation Nagano EMC Center: EMC17082 (Dated 2017.08.31)

Test Plan: VGI-Q2106-07 (Dated 2021.06.30)

EMC Test Report, ADOX FUKUOKA EMC Site: No.2021-018 (Dated 2021.11.18)

EMC Test Report, ADOX FUKUOKA EMC Site: No.2021-019 (Dated 2021.11.18)

Test Results No. VGI-T2108-15 (Dated 2021.09.15) and VGI-T2108-16 (Dated 2021.11.04)

- To be continued -

Test items & approval conditions:

1. Test items:

(Applied testing items are marked with X.)

ENVIRONMENTAL TESTS (IACS UR E10 Rev.8 Corr.1 basis)		Mark
External examination		X
Operation test and performance test		X
Electric power supply failure test		X
Power supply fluctuation test	Electric	X
	Pneumatic and Hydraulic	--
Insulation resistance test		X
High voltage test		X
Pressure test (Pneumatic and Hydraulic)		--
Dry heat test (Temperature $55^{\circ}\text{C} \pm 2^{\circ}\text{C} \times 16$ hours)		X
Damp heat test		X
Vibration test (Acceleration $\pm 0.7\text{g} \times 1.5$ hours)		X
Inclination test		--
Cold test (Temperature $5^{\circ}\text{C} \pm 2^{\circ}\text{C} \times 16$ hours)		X
Salt mist test		--
Electrostatic discharge immunity test		X
Radiated radio frequency immunity test		X
Conducted low frequency immunity test		X
Conducted high frequency immunity test		X
Burst / Fast transient immunity test		X
Surge immunity test		X
Radiated emission test		X
Conducted emission test		X
Flame retardant test		--

2. Approval condition:

- (i) The product is not allowed to be installed in the bridge and on open decks.
- (ii) Installation of the units is to be in accordance with the manufacturer's instruction document No. EZZ023628 that describes the required measures to comply with the test requirements.

- The End -