

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Frequency Converter**with type designation(s)  
**Altivar 312,**Issued to  
**STIE**  
**Pacy Sur Eure, Eure, France**is found to comply with  
**DNV GL rules for classification – Ships, offshore units, and high speed and light craft****Application :****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2018-08-02**for **DNV GL**This Certificate is valid until **2023-06-30**.DNV GL local station: **Le Havre**Approval Engineer: **Nicolay Horn**

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**Marta Alonso Pontes**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Job Id: **262.1-009688-5**  
 Certificate No: **TAE00001E2**  
 Revision No: **1**

## Name and place of manufacturer

Schneider Electric Industries, 2 rue du Pont Vert, ZAC - Le Village, 27109 Le Vaudreuil FRANCE	PT SCHNEIDER ELECTRIC MFG BATAM (SEMB) BATAM INDUSTRIAL PARK BLK 4 MUKAKUNING, BATAM RIAU, 29433 INDONESIA
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## Product description

Variable speed controller for asynchronous motor. Constant / variable torque applications.

Single phase supply with integrated EMC filter

Type designation	Mains supply V)	Number of phases	Motor power output (kW) <sup>1)</sup>
ATV 312H018M2	200 - 240	1	0,18
ATV 312H037M2	200 - 240	1	0,37
ATV 312H055M2	200 - 240	1	0,55
ATV 312H075M2	200 - 240	1	0,75
ATV 312HU11M2	200 - 240	1	1,1
ATV 312HU15M2	200 - 240	1	1,5
ATV 312HU22M2	200 - 240	1	2,2

3-phase supply without EMC filter

Type designation	Mains supply (V)	Number of phases	Motor power output (kW) <sup>1)</sup>
ATV 312H018M3	200 - 240	3	0,18
ATV 312H037M3	200 - 240	3	0,37
ATV 312H055M3	200 - 240	3	0,55
ATV 312H075M3	200 - 240	3	0,75
ATV 312HU11M3	200 - 240	3	1,1
ATV 312HU15M3	200 - 240	3	1,5
ATV 312HU22M3	200 - 240	3	2,2
ATV 312HU30M3	200 - 240	3	3,0
ATV 312HU40M3	200 - 240	3	4,0
ATV 312HU55M3	200 - 240	3	5,5
ATV 312HU75M3	200 - 240	3	7,5
ATV 312HD11M3	200 - 240	3	11
ATV 312HD15M3	200 - 240	3	15

3-phase phase supply with integrated EMC filter

Type designation	Mains supply (V)	Number of phases	Motor power output (kW) <sup>1)</sup>
ATV 312H037N4	380 - 500	3	0,37
ATV 312H055N4	380 - 500	3	0,55
ATV 312H075N4	380 - 500	3	0,75
ATV 312HU11N4	380 - 500	3	1,1
ATV 312HU15N4	380 - 500	3	1,5
ATV 312HU22N4	380 - 500	3	2,2
ATV 312HU30N4	380 - 500	3	3,0
ATV 312HU40N4	380 - 500	3	4,0
ATV 312HU55N4	380 - 500	3	5,5
ATV 312HU75N4	380 - 500	3	7,5
ATV 312HD11N4	380 - 500	3	11
ATV 312HD15N4	380 - 500	3	15

1) Values applicable for 40 °C. To be modified for ships application at 45 °C. See under "Application / limitation".

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## Application/Limitation

Supply voltage range:	200 - 500 V, 50/60 Hz
Voltage variation:	± 10 %
Frequency variation:	± 10 %
Output frequency:	0 – 500 Hz.
Temperature range in operation:	0 – 40 °C (40 – 60 °C when derated)
Temperature class:	A
Vibration class:	A
Humidity class:	A
EMC class:	IEC 61800-3, To be used on EMC A levels only

The Altivar 312 must be regarded as a component. The actual installation to be designed according to Schneider Users Manual and according to the applicable DNV Rules for the actual application. To be installed in an enclosure with an IP degree in accordance with DNV Rules w.r.t. location.

Converters with conducted and radiated emission above the DNV required limits may be installed in "special distribution zone" and "general power distribution zone", in accordance with IEC 60533 provided precautions are taken to attenuate these effects on the distribution system, so the safe operation is assured. Planned EMC precautions shall be submitted for approval prior to installation onboard.

The EMC precautions should be derived from an EMC analysis and plan in accordance with IEC 60533 Annex B and /or IEC 61800-3 Annex E.

Use of mechanical adaptation required to reduce the Vibration level.

For marine applications size of drive to be chosen according to chapter "Technical Specification" and derated with respect to an ambient temperature of 45°C and drive mode in accordance with chapter "Environment" in "Altivar 31 Users Manual" (2,2% per deg. C for ambient above 45 °C).

## Type Approval documentation

### Technical info:

"Letter from Schneider Toshiba Inverter SAS to DNV" dated 2010-03-23.

### Test reports:

Technical Report Product Range no. RT-032-PNT-09-103328-2-A dated 2010-01-19.

Schneider Electric Toshiba test report nos. ATV312\_QTR\_90056.doc56 dated 2009-01-21, ATV312\_QTR\_90215.doc215 dated 2009-03-11, ATV312\_QTR\_90244 dated 2009-03-17, ATV312\_LTR\_90031 dated 2008-01-13, CNPP test report nos. LM 09 00 20 & LM 09 00 21 dated 2009-04-22, UL-RQ-RS2-4150-00\_S9 dated 2004-07-25, Schneider Electric test reports nos. 204-03 dated 2003-05-23, 207-03 dated 2003-06-06, 231-03 dated 2003-06-27, 376-03 dated 2003-06-30, Schneider-Toshiba test reports nos. 312 DNV-03 dated 2005-09-08, 312-DNV-05 dated 2005-10-23, 313-34-01 dated 2003-05-15, RQ3130317 & 19 dated 2003-09-19, RQ3133017 & 19 and RQ3134606 & 07 dated 2003-09-18, RQ3133101 & 110 dated 2003-07-21 & 22, RQ3131301 & 06 dated 2003-07-17, RQ3131016 & 2816 dated 2003-09-18 & 19, RQ312-DNV-01 & 02 dated 2004-07-28 & 2004-08-05, 378-03 dated 2003-07-22, Sopema test report LH 34031 dated 2004-08-19, Emitech test report RC-04-45628-1-A-BPE-SG dated 2005-12-01.

## Tests carried out

Visual inspection, Performance/temperature rise, Power supply failure, Power supply variations, Voltage/frequency variation, Vibration, Dry heat, Damp heat, Insulation resistance, High voltage.

EMC: The following tests are in accordance with the IEC 601800-3: Electrical fast transient (Burst), electrical slow transient (Surge), conducted disturbances, electric discharge (ESD), radiated and conducted emission.

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## Marking of product

Altivar 312 – Type designation – Power – Voltage

## Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine tests (RT) checked (if not available, tests according RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Assessment to be performed at 2 and 3.5 year and at renewal.

END OF CERTIFICATE