

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Frequency Converter

with type designation(s)

SINAMICS S120 Cabinet Modules, Liquid Cooled, Application Marine Drives, AFE

Issued to

SIEMENS AG

Ruhstorf a. d. Rott, Germany

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **2021-11-29**.

Issued at **Hamburg** on **2016-11-30**

DNV GL local station: **Augsburg**

Approval Engineer: **Jens Altmann**

for **DNV GL**

Duy Nam Le
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.

Product description

6SE04 Series Frequency Converter

Cooling Circuit

Closed cooling circuit (MLFB: X = 3,4,5)

Input supply voltage

380...480V, 50Hz
380...480V, 60Hz
660...690V, 50Hz
660...690V, 60Hz

Line Side Components

TYPE	MLFB	Chassis	MAINS VOLTAGE	POWER [kW]
AIM	6SL3305-7TE38-4AAx	JL	380-480V	500
	6SL3305-7TE41-4AAx	JL	380-480V	900
	6SL3305-7TG37-4AAx	JL	500-690V	800
	6SL3305-7TG41-0AAx	JL	500-690V	1100
	6SL3305-7TG41-3AAx	JL	500-690V	1400
	6SL3305-7TG41-6AAx	JL	500-690V	1700
	L0459360 (*)	JL	690V	1700
	L0469673 (*)	JL	690V	1700
	X=3 KTY sensor X=5 PT1000 sensor (* for SGD)			
ALM				
	6SL3335-7TE35-0AA3	GXL	380-480V	300
	6SL3335-7TE36-1AA3	HXL	380-480V	380
	6SL3335-7TE38-4AA3	HXL	380-480V	500
	6SL3335-7TE41-0AA3	JXL	380-480V	630
	6SL3335-7TE41-4AA3	JXL	380-480V	900
	6SL3335-7TG35-8AA3	HXL	500-690V	630
	6SL3335-7TG37-4AA3	HXL	500-690V	800
	6SL3335-7TG38-1AA3	HXL	500-690V	900
	6SL3335-7TG41-0AA3	JXL	500-690V	1100
	6SL3335-7TG41-3AA3	JXL	500-690V	1400
	6SL3335-7TG41-6AA3	JXL	500-690V	1700
ALM (SGD)				
	6SL3335-7TG35-8AA4	HXL	500-690	630
	6SL3335-7TG41-3AA4	JXL	500-690	1400

6SL3335-7TG41-6AA4	JXL	500-690	1700
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Output current

400V

Motor Current [A]	Number of Motor Modules	Frame Size Motor Module	MLFB Motor Module
210	1	FXL	6SL3325-1TE32-1AA3
260	1	FXL	6SL3325-1TE32-6AA3
310	1	GXL	6SL3325-1TE33-1AA3
490	1	GXL	6SL3325-1TE35-0AA3
605	1	HXL	6SL3325-1TE36-1AA3
745	1	HXL	6SL3325-1TE37-5AA3
840	1	HXL	6SL3325-1TE38-4AA3
985	1	JXL	6SL3325-1TE41-0AA3
1260	1	JXL	6SL3325-1TE41-2AA3
1405	1	JXL	6SL3325-1TE41-4AA3
1595	2	HXL	6SL3325-1TE38-4AA3
1870	2	JXL	6SL3325-1TE41-0AA3
2125	3	HXL	6SL3325-1TE35-0AA3
2395	2	JXL	6SL3325-1TE41-2AA3
2670	2	JXL	6SL3325-1TE41-4AA3
3190	4	HXL	6SL3325-1TE38-4AA3
3590	3	JXL	6SL3325-1TE41-2AA3
4005	3	JXL	6SL3325-1TE41-4AA3
4790	4	JXL	6SL3325-1TE41-2AA3
5340	4	JXL	6SL3325-1TE41-4AA3

690V

Motor Current [A]	Number of Motor Modules	Frame Size Motor Module	MLFB Motor Module
575	1	HXL	6SL3325-1TG35-8AA3
810	1	HXL JXL	6SL3325-1TG38-0AA3 6SL3325-1TG38-1AA3
1025	1	JXL	6SL3325-1TG41-0AA3
1270	1	JXL	6SL3325-1TG41-3AA3
1560	1	JXL	6SL3325-1TG41-6AA3
1940	2	JXL	6SL3325-1TG41-0AA3

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2410	2	JXL	6SL3325-1TG41-3AA3
2960	2	JXL	6SL3325-1TG41-6AA3
3620	3	JXL	6SL3325-1TG41-3AA3
3895	4	JXL	6SL3325-1TG41-0AA3
4440	3	JXL	6SL3325-1TG41-6AA3
4820	4	JXL	6SL3325-1TG41-3AA3
5930	4	JXL	6SL3325-1TG41-6AA3

Option modules

DC-Switch

Infeed type

LV Marine Application based on AFE
LV Marine Application based on AFE with shaft generator functionality

Electronic control equipment

Equipment	MLFB
Control Unit CU320-2 DP	6SL3040-1MA0x-0Axx
Control Unit CU320-2 PN	6SL3040-1MA0x-0Axx
Basic Operator Panel BOP20	6SL3055-0AA00-4Bxx
Communication Boards CBC10	6SL3055-0AA00-2Cxx
DRIVE CLiQ Hub Modules DMC20	6SL3055-0AA00-6Axx
Terminal Module TM31	6SL3055-0AA00-3Axx
Voltage Sensing Modules VSM 10	6SL3053-0AA00-3Axx
Sensor Module SMC 30	6SL3055-0AA00-5Cxx
Advanced Operator Panel AOP30	6SL3055-0AA00-4Cxx

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Application/Limitation

Converter assemblies installed in Rittal TS8 cubicles with marine specific modifications. To be equipped with anti condensation heating and air inlet filters. Protection degree IP20, IP21, IP23, IP43 and IP54. Temperature class A, Humidity class B, Vibration class A, EMC class A

EMC measures of manufacturer to be observed.

May be used for all type of drives including electric propulsion

Type Approval documentation

According to Siemens Overview chart Drawing No.: A5E39182741A, Project Number 262.1-021930-1

Tests carried out

According to Siemens Overview chart Drawing No.: A5E39182741A, Project Number 262.1-021930-1
Tests in accordance with class programme DNVGL-CP-0395 (December 2015).

Marking of product

In accordance with IEC60146-1-1 § 6.6.2

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are 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 Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and 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 least every 2 year.

END OF CERTIFICATE