DNV·GL

Certificate No:
TAE00002Y3

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Frequency Converter

with type designation(s)
BFI-P2

Issued to
Beijer Electronics AB
Malmö, Skåne Län, Sweden

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Frequency Converter for Asynchronous Motors. Range: 5,5 kW to 160 kW, 200 - 480 VAC supply.

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

Issued at **Høvik** on **2018-06-08**
This Certificate is valid until **2023-08-31**.
DNV GL local station: **Manchester**

Approval Engineer: **Nicolay Horn**

for **DNV GL**

Andreas Kristoffersen
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: **262.1-013484-3**
Certificate No: **TAE00002Y3**

Name and place of manufacturer

Invertek Drives Ldt.
Powys, Uniterd Kingdom

Product description

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

Type designation	Frame size	Mains supply (V)	Number of phases	Output Current (A)	Motor shaft power (kW) @ 40°C)	7.5% Derated Motor shaft power (kW) @ 45°C)
BFI-P2-42-0240-3F4...	4	200 - 240	3	24	5,5	5,1
BFI-P2-42-0300-3F4...	4	200 - 240	3	30	7,5	7
BFI-P2-42-0460-3F4...	4	200 - 240	3	46	11	10,2
BFI-P2-52-0610-3F4...	5	200 - 240	3	61	15	13,9
BFI-P2-52-0720-3F4...	5	200 - 240	3	72	18,5	17,1
BFI-P2-62-0900-3F4...	6	200 - 240	3	90	22	20
BFI-P2-62-1100-3F4...	6	200 - 240	3	110	30	28
BFI-P2-62-1500-3F4...	6	200 - 240	3	150	37	34
BFI-P2-62-1800-3F4...	6	200 - 240	3	180	45	42
BFI-P2-72-2020-3F4...	7	200 - 240	3	202	55	51
BFI-P2-72-2480-3F4...	7	200 - 240	3	240	75	69
BFI-P2-44-0240-3F4...	4	380 - 480	3	24	11	10,2
BFI-P2-44-0300-3F4...	4	380 - 480	3	30	15	13,9
BFI-P2-44-0390-3F4...	4	380 - 480	3	39	18,5	17,1
BFI-P2-44-0460-3F4...	4	380 - 480	3	46	22	20
BFI-P2-54-0610-3F4...	5	380 - 480	3	61	30	28
BFI-P2-54-0720-3F4...	5	380 - 480	3	72	37	34
BFI-P2-64-0900-3F4...	6	380 - 480	3	90	45	42
BFI-P2-64-1100-3F4...	6	380 - 480	3	110	55	51
BFI-P2-64-1500-3F4...	6	380 - 480	3	150	75	69
BFI-P2-64-1800-3F4...	6	380 - 480	3	180	90	83
BFI-P2-74-2020-3F4...	7	380 - 480	3	202	110	102
BFI-P2-74-2400-3F4...	7	380 - 480	3	240	132	122
BFI-P2-74-3020-3F4...	7	380 - 480	3	302	160	148

Application/Limitation

Supply voltage range:	200 - 480 V, 50/60 Hz
Voltage variation:	- 10 % , + 10 %
Frequency variation:	± 10 %
Output frequency:	0 - 320 Hz
Temperature range in operation:	0 - 40 °C (40 - 50 °C when derated1,5% /°C, 50 - 55 when derated 2,5% /°C)
Temperature class:	A
Vibration class:	A
Humidity class:	A
Protection class*:	IP20, IP40, IP55 & IP66*
EMC class**:	IEC 61800-3**

BFI-P2 must be regarded as a component. The actual installation shall be designed according to Invertek Installation & Operating lnstructions and according to the applicable DNV Rules for the actual application.Documents for the actual application are to be submitted for approval in each case in accordance with DNV GL Rules Pt.4, Ch.8, Sec.1 Table 2. A Product Certificate is required for converters ≥ 100 kW.

*To be installed in an enclosure with an IP degree in accordance with DNV Rules w.r.t. location.

**Converters EMC classed C3 according to IEC 61800-3 can 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.

Type Approval documentation

Tests carried out

Type tests in accordance with IEC 61800 / UL508C as Visual inspection, Performance/heat run. Environmental test in accordance with DNV SfC No. 2.4 as 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 IEC 61800-3: Electrical fast transient (Burst), electrical slow transient (Surge), RF-common mode Voltage, radiated RF-electromagnetic fields, electric discharge (ESD), radiated and conducted emission. (See under application limitation).

Marking of product

Beijer Electronic – 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 Routines (RT) checked (if not available tests according to 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