

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Power Switch Board with Bus Bar**with type designation(s)
JSB-5

Issued to

JRCS Mfg. Co., Ltd.
Shimonoseki Yamaguchi, Japanis found to comply with
DNV GL rules for classification – Ships and offshore units**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Rated voltage (V) 12 kV**
Rated current (A) up to 2000
Rated freq. (Hz) 50/60This Certificate is valid until **2021-07-13**.Issued at **Høvik** on **2016-07-14**DNV GL local station: **Hiroshima**Approval Engineer: **Nicolay Horn**for **DNV GL**-----
Marit Laumann
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

Medium voltage switchboard of partitioned type with 3 separate compartments for high voltage (bus bar & outgoing circuit) and one separate compartment for control/ auxiliary devices. Equipped with pressure relief panels.

Technical data:

Rated voltage [kV]:			12
Rated Insulation level [kV]:	Lighting impulse	Common value	75
		Across the isolating distance	75
	Power frequency	Common value	28
		Across the isolating distance	28
Rated frequency [Hz]:			50/60
Rated current [A]:			Main bus bar: 2000
Rated short-time withstand current 1 s. [kA] (Breaking capacity):			31.5
Rated peak withstand current 1 s. [kA] (Making capacity):			80
Arc test 1 s. [kA]:			31.5
Degree of protection:		Enclosure	IP43
		Partition	IP2X

Functional unit	Dimensions			Access code (IAC Classification)
	H	W	D	
JSB-5-31.5-670JS	670	2900	1970	AFR
JSB-5-31.5-670D	670	2900	1970	AFLR
JSB-5-31.5-670C	670	2900	1970	AFLR
JSB-5-31.5-670S	670	2900	1750	AFLR
JSB-5-31.5-1000A	670	2900	1970	AFLR
JSB-5-31.5-820S	670	2900	1750	AFLR
JSB-5-31.5-1100SY	670	2900	1750	AFR
JSB-5-31.5-670BOW	670	2900	1970	AFR

Application/Limitation

Medium voltage switchboard systems of partly partitioned type for use onboard ships and mobile offshore units.

The switchboard system shall be divided into two independent and autonomous installations.

The type approval covers system design principle in accordance with IEC 62271-200. Equipments as circuit breakers etc. are not covered by this type approval.

A DNV GL product certificate for the specific switchboard is required in each case.

Documents and drawings for the actual application as stated in the Rules Pt.4, Ch.8, Sec. 1, Table 2 except E150, shall be submitted for approval in each case by the end manufacturer.

Final design and selection of equipment and components to be made in accordance with the applicable rules for the actual case.

Type Approval documentation

Tests carried out

Type Testing according to IEC 62271-1 and IEC 62271-200: Temperature rise test, internal arc test, dielectric test, short time withstand test, short circuit test, mechanical operation test, vibration test, inclination test and IP testing.

Marking of product

Makers name plate with type and key data in accordance with DNV GL Rules Pt.4 Ch.8 Sec.4 1.1.7-

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 Routine tests (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 least every second year.

END OF CERTIFICATE