Certificate No:
TAA0000373

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Engine Safety, Control and Alarm System

with type designation(s)
MCS-5, MCS 6, RCS-5, RCS-6

Issued to
Rolls-Royce Solutions GmbH
Friedrichshafen, **Germany**

is found to comply with
DNV 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.

Type	Temperature	Humidity	Vibration	EMC	Enclosure
MCS-5, MCS 6	B	B	A	A	Required protection according to relevant rules shall be provided upon installation on board
RCS-5, RCS-6	B	B	A	A/B	Required protection according to relevant rules shall be provided upon installation on board

Issued at **Hamburg** on **2023-02-13**
This Certificate is valid until **2027-08-30**.
DNV local station: **Augsburg**

Approval Engineer: **Jens Dietrich**

for **DNV**

Joannis Papanuskas
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

Management Computer Units
MCU14 (see MRA000002D)

Peripheral Interface Modules with input/output
PIM1,PIM2,PIM3,PIM4, PIM5 to be used with filter module FIB

Systembus Coupling Unit
SCU1

Remote Interface Module
RIM1

Programmable Process Stations
PPS4, CPS

Control and Display panels
PAN1, PAN2, PAN3, PAN4, PAN5, PAN6, PAN7, PAN8, PAN9

Propulsion Control Levers
ROS2, ROS7, ROS13, ROS14, ROS15, ROS16, ROS17

Filter module
FIB

Standard Automation Module with I/Os for additional control functions
SAM1

Application/Limitation

The following documentation of the actual application is to be submitted for approval in each case:
- Reference to this Type Approval Certificate
- System block diagram
- Power supply arrangement (may be part of the System block diagram)
- List of control and monitored points
- Circuit diagrams
- Description of functions covered by software
- Test program for application software at manufacturer

The Type Approval covers hardware listed under Product description.

Product certificate
Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The Certification is to be performed at the manufacturer before the system is shipped to the yard. After certification the clause for software control will be put into force.

Software control
All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

Tests carried out

Applicable Tests according to DNV CG-0339, August 2021.

Marking of product

Name of manufacturer, type designation, serial number.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:
- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)

- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE