

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the General Control System**with type designation(s)  
**E-CO2**

Issued to

**safetec Brandes und Niehoff GmbH**  
**Scharnebeck, Germany**is found to comply with  
**DNV GL rules for classification – Ships****Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Location classes:****Temperature B****Humidity B****Vibration A****EMC B****Enclosure Required protection according to the Rules shall be provided upon installation on board.**Issued at **Hamburg** on **2020-01-27**for **DNV GL**This Certificate is valid until **2025-01-26**.DNV GL local station: **Hamburg CMC**Approval Engineer: **Heinz Scheffler****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.



## Product description

This type approval certificate provides a general acceptance for design and manufacture of a electrical release system for fixed high-pressure CO2 systems on the basis of the documentation specified under the item "Type Approval Documentation".

Electrical Release Control System for Gas Fire-Extinguishing Systems contains of:

### Hardware:

- CP-30 Release Panel for max. 6 sections
- MC2x.yyy Module Cabinet
  - x: 0 = Module Cabinet ACS01.308;  
1 = Module Cabinet ACS01.312
  - yyy: different combinations of modules according the project requirements:
    - I/O-Module IO-6303
    - I/O-Module IO-6340
    - Output Module ACS-OUT48
    - Opto Coupler Module ACS-OPTO48-A
    - Opto Coupler Module ACS-OPTO48-R
    - Relay Module ACS-REL16
    - Safety Module SAFE-01
    - Battery Charger Module POW-6510
    - Main/Emergency Switcher MEPS-01
    - Power Supply Modules STEPPS/1AC/24DC or TRIO UPS/1AC/24DC/5
    - Battery Powerfit A512/2.OS
- Vbxxx-MAR Section Valve Motor Actuator Valbia
  - xxx = 030, 060,110, 190, 270 350
- B04425103 Electromagnetic Actuator for Cylinder Valves
- B04425131 Electromagnetic Actuator for Cylinder Valves

### Software:

- SW-CP30-STD Version 1.05.002
- A303V2.03
- A340V2.03
- A361V2.03

### Function:

- Remote electrical release of Gas Fire-Extinguishing Systems
- Automatic triggering for the audible alarm device through the remote opening of the section valve
- Permanent self-supervision of the control system
- Manual override function for the section valves and the cylinder group valves
- Outputs to the Machinery Alarm System and Auxiliary Systems

### **Approval conditions**

The Type Approval covers hardware and software listed under Product description.

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this Type Approval Certificate
- Reference to other Type Approval Certificates where applicable
- Functional description
- System block diagram
- User interface description
- Software version used in specific delivery
- Power supply arrangement (may be part of the System block diagram)
- Circuit diagrams
- Documentation incl. of visual and audible alarms and specification of time delay
- List of control and monitored points
- Test program for for certification

When the type approved hardware and software is revised (affecting all future deliveries) DNV GL is to be informed by forwarding updated version documentation. If the changes are judged to affect the environmental requirements and the EMC requirements and the functionality for which rule requirements and international requirements apply a new type tests may be required and the certificate may have to be renewed to identify the new versions.

### **Product certificate.**

Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The project certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After the certification the clause for application software control will be in force.

### **Clause for application software control.**

All software modifications made after the certification test and as long as the system is in use onboard, are to be recorded. The records, together with the software version(s) in use are to be available for evaluation at request by DNVGL. Software changes are to be approved before being installed onboard.

This type approval certificate provides a general acceptance for design and , manufacture of a electrical release system for fixed high-pressure CO2 systems on the basis of the documentation specified under the item "Type Approval Documentation".

Only the electrical release system concept is approved by this certificate. Cylinders, pipes, couplings and other systems components are subject to case by case approval

Job Id: **262.1-030914-1**  
Certificate No: **TAA00002CB**

### **Application/Limitation**

The E-CO2 release system is designed for control of fixed gas fire-extinguishing systems as defined in the FSSCode Chapter 5 by the Convention for the Safety of Life at Sea (SOLAS) and DNVGL Statutory Interpretations, as amended.

Cylinders, pipes, couplings and other systems components with are not listed under hardware are not subject of this certificate.

The important notices of the Manual (DOK02.071) is to be observed for Project design, Set to work, Maintenance and Testing.

The system should be periodical tested and inspected acc. to IMO MSC.1/Circ.1318 and Manual (DOK02.071). More stringent flag state requirements, if any, prevail.

### **Type Approval documentation**

**Test Reports:** No. 01-07/2008; No. 02-07/2008; No. 03-07/2008; No. 04-07/2008; No. 05-07/2008; No. 08-8085-2; E-CO2-Spec Rev.3; E-CO2-PT Rev.3 (Performance Test); FMEA-E-CO2 Rev.1; LR-Rail SW Assessment Report80398rrs090522 Issue 1

**Documents:** List of Documents E-CO2 Rev.3

### **Tests carried out**

Applicable tests according to class guideline DNVGL-CG-0339, December 2019

### **Marking of product**

The products to be marked with:

- Model name
- Manufacturer name
- 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 materials 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