

# TYPE APPROVAL CERTIFICATE

## This is to certify:

**That the Refrigerant Compressor**

with type designation(s)  
**CS.75**

Issued to

**Bitzer Kühlmaschinenbau GmbH**  
**Sindelfingen, Baden-Württemberg, Germany**

is found to comply with  
**DNV GL rules for classification – Ships Pt.4 Ch.5 Rotating machinery – driven units**

## Application :

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

**Max. working press.:** 28 bar

**Operating media** HCFC-refrigerants, HFC-single-component refrigerants, HFC-refrigerant blends, HFO-refrigerants, HFO/HFC refrigerant blends, see page 2

Issued at **Hamburg** on **2018-06-12**

This Certificate is valid until **2022-07-19**.

DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Christian Kaemmer**

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**Olaf Drews**  
**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: **262.1-022525-3**  
Certificate No: **TAM00000W7**

## Product description

### Semi-Hermetic Compact Screw Compressor

#### CSH High condensing:

CSH7553-50  
CSH7553-70  
CSH7563-60  
CSH7563-80  
CSH7573-70  
CSH7573-90  
CSH7583-80  
CSH7583-90  
CSH7583-100  
CSH7593-90  
CSH7593-100  
CSH7593-110

#### CSW Low condensing:

CSW7573-60  
CSW7573-70  
CSW7583-70  
CSW7583-80  
CSW7593-80  
CSW7583-90

#### Casing Material:

Spheroidal Graphite

#### Screw Rotor Material:

EN-GJS-600-3, EN-GJS-500-7  
EN-GJS-400-3 (only female rotor)

## Usable Refrigerants

|                                                                                |
|--------------------------------------------------------------------------------|
| HCFC-refrigerants of the safety group A1 and Fluid Group 2 PED                 |
| HFC-single-component refrigerants of the safety group A1 and Fluid Group 2 PED |
| HFC-refrigerant blends of the safety group A1 and Fluid Group 2 PED            |
| HFO-refrigerant of safety group A2L and Fluid Group 1                          |
| HFO-refrigerant of safety group A2L and Fluid Group 2                          |
| HFO/HFC refrigerant blends of safety group A1 and PED fluid group 2            |

**Note:** Fluid Groups acc. to PED = Pressure equipment directive 2014/68/EU  
Safety Groups acc. to EN DIN 378-1:2017-03

## Production place

- Bitzer Kühlmaschinenbau GmbH, Werk Rottenburg, D-72108 Rottenburg-Ergenzingen//Germany.

## Application

Air Conditioning, Provision Cooling, Cargo Refrigeration.

## Tests to be carried out

Compressors are subject to a performance test at the manufacturer's works under supervision of DNVGL and are to be presented for final inspection.

## Type Approval documentation

## Marking of product

The product shall be marked with manufacturer's name, year of construction, effective suction rate [m<sup>3</sup>/h], discharge pressure [bar], speed [rpm], shaft power [kW], 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, 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, components and/or materials used comply with type approved documents and/or referenced system, component and material specifications
  - Review of possible changes in design of systems, 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 at least every second year and at renewal of this certificate.