DNV·GL

Certificate No:
TAM00000W9

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Refrigerant Compressor

with type designation(s)
CS.95

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**

Approval Engineer: **Christian Kaemmer**

for **DNV GL**

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.

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Job Id: **262.1-022523-3**
Certificate No: **TAM00000W9**

Product description

Semi-Hermetic Compact Screw Comressor

CSH High condensing:

CSH9553-180
CSH9563-160
CSH9563-210
CSH9573-180
CSH9573-240
CSH9583-210
CSH9583-280
CSH9593-240
CSH9593-300
CSH95103-280
CSH95103-320
CSH95113-320

CSW Low condensing:

CSW9553-140
CSW9563-140
CSW9563-160
CSW9573-160
CSW9573-180
CSW9583-180
CSW9583-210
CSW9593-210
CSW9593-240
CSW95103-240
CSW95103-280
CSW95113-280
CSW95113-320

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 [m3/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.