DNV·GL

Certificate No:
TAM000014V

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Refrigerant Compressor & Expander

with type designation(s)
HS95
HSE95

Issued to
BITZER Kühlmaschinenbau GmbH
Sindelfingen, 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.

Type	Max. working press.:	Operating media
HS95 **HSE95**	**32 bar**	**HCFC-refrigerants, HFC-single component refrigerants, HFC-refrigerant blends, HFO-refrigerants, HFO / HFC-refrigerant blends, Inorganic Compound, see page 2**

Issued at **Hamburg** on **2020-12-14**
This Certificate is valid until **2025-12-13**.
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: **262.1-032635-1**
Certificate No: **TAM000014V**

Product description

Semi-Hermetic Screw Compressor **HS95**
Semi-Hermetic Screw Expander **HSE95**

Casing Material: EN-GJL-250 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 refrigerant of the safety group A1 and Fluid Group 2 PED
HFC-single-component refrigerant of the safety group B1 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 PED
HFO-refrigerant of safety group A2L and Fluid Group 2 PED
HFO/HFC refrigerant blends of safety group A1 and Fluid Group 2 PED
Inorganic Compound: R717 / Ammonia, safety group B2L and Fluid Group 1 PED

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

Application
Air Conditioning, Provision Cooling, Cargo Refrigeration.
Expander version to be used for waste heat recovery.

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, effective suction rate [m3/h], discharge pressure [bar], speed [rpm], serial number.

Periodical assessment
For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the Type Approval are complied with. Refer to the Class Programme DNVGL-CP-0338, Sec.4.