

TYPE APPROVAL CERTIFICATE**This is to certify:****That the Refrigerant Compressor**

with type designation(s)

CMO 24, CMO 26, CMO 28, CMO 34, CMO 36, CMO 38, TCMO 28, TCMO 38, , HPO 24, HPO 26, HPO 28

Issued to

**Johnson Controls Denmark ApS
Højbjerg, Denmark**

is found to comply with

DNV GL rules for classification – Ships**Application :****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.****Type****CMO 24, CMO 26, CMO 28, CMO 34, CMO 36, CMO 38, TCMO 28, TCMO 38****Max. working press.:****HP (discharge side) : 28 bar
LP (suction side) : 20 bar****Operating media****R22, R134A, R290, R404A, R407C, R600A, R717, R1270****HPO 24, HPO 26, HPO 28****HP (discharge side) : 50 bar
LP (suction side) : 25 bar****R744, R507, R717**Issued at **Høvik** on **2018-11-16**for **DNV GL**This Certificate is valid until **2022-12-31**.DNV GL local station: **Aalborg**Approval Engineer: **Amir Dzaferi****Oddvar Deinboll
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: **262.1-006948-9**
 Certificate No: **TAM00000V1**
 Revision No: **1**

Product description

Refrigerant piston compressors

One stage, 4 cyl.	CMO 24, CMO 34 and HPO 24
One stage, 6 cyl.	CMO 26, CMO 36 and HPO 26
One stage, 8 cyl.	CMO 28, CMO 38 and HPO 28
Two stages, 6LP cyl. + 2 HP cyl.	TCMO 28 and TCMO 38

Application/Limitation

Compressor types	Max working pressure [bar]		Operating media
	Discharge side	Suction side	
CMO	28	20	R22, R134A, R290, R404A, R407C, R600A, R717, R1270
HPO	50	25	R744, R507, R717

Type Approval documentation

Drawing No.	Rev.	Title
3121-366	5	Crank Shaft for CMO 34 Machined
3121-367	5	Crank Shaft for CMO 36 Mk3 Machined
3121-379	2	Crank Shaft for CMO/HPO 24 Machined
3121-380	4	Crank Shaft for CMO/HPO 26 Machined
3121-381	4	Crank Shaft for CMO/HPO 28 Machined
3121-397	3	Crank Shaft SMC/HPC 104 S Machined
3121-398	3	Crank Shaft SMC/HPC 106 S Machined
3121-399	5	Crank Shaft SMC/HPC 108S Machined

Marking of product

The product to be marked with manufacturer's name or trademark and type number identification.

Periodical assessment

For retention of the type approval, a DNV GL surveyor shall perform an assessment after 2 years and after 3.5 years, to verify that the conditions of the type approval are complied with. A renewal assessment will be performed at renewal of the certificate.

In cases where the type approved product is manufactured at other companies, the periodical assessment shall verify that the type approval applicant has a quality control system for consistent production at their licensees/subcontractors. Furthermore, periodical assessment shall be carried out randomly at these companies.

Other conditions

- The type approval is valid for compressor only. The approval does not cover driving member, control system, connected instrumentation and other connected components.
- Refrigerating compressors shall satisfy the requirements given in DNV GL rules for ship, Pt.6 Ch.4 Sec.10.

END OF CERTIFICATE