

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Air Starter

with type designation(s)
A15, A17, A25, A27, A45, A47, A48, S30, S38, A47Z

Issued to
GALI INTERNACIONAL, S.A.
Sentmenat, Barcelona, Spain

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
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 pressure M.A.W.P. [bar]	Max. power [kW]	Speed at maximum power [rpm]	Max. torque [Nm]
A15	30	15	4000	66
A17	40	16,5	4000	88
A25	30	25	3500	133
A27	40	30	2800	188
A45	30	66	2300	540
A47	30	66	2300	540
A48	40	95	2200	925
S30	30	41.5	2500	305
S38	30	42	2500	360
A47Z	30	66	2300	540

Issued at **Hamburg** on **2019-05-22**

for **DNV GL**

This Certificate is valid until **2022-12-11**.

DNV GL local station: **Barcelona**

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: **262.1-031383-1**
Certificate No: **TAM00000S4**
Revision No: **1**

Product description

Air starters suitable for starting diesel engines, gas and dual fuel engines.

Based on a pair of geared rotors placed on the motor body, the rotors turn the force given by means of pressurized air into a torque. The torque is transmitted to the output shaft by a reduction mechanism. De-pressurized starting air is let to atmosphere. The head, motor body and the exhaust silencer are permanently opened to atmosphere.

Main components: Motor body, rotors, frontal cover, shaft & driving pinion, head, main valve, inlet elbow, exhaust silencer, nozzle.

Accessories: Filter set for A15 [for starter type series A15 & A17]
Filter set for A25 [for starter type series A25, A27]
Filter set for A45 [for starter type series A45, A47 & A48]
Filter set for S30/S38 [for starter type series S30 & S38]

Application/Limitation

The starter series are type approved for application in pipe class II and III-piping systems. The starter series are approved as starting device for diesel engines, gas and dual fuel engines.

Installation

The selection of the air starters for the corresponding application and the right installation are to be in accordance with the instructions of the manufacturer.

Type Approval documentation

Technical datasheets 310817 MCE- I + D – 34-1; Performance certificate A27, starter no. 6699 dated 2017-09-22. Drawings no.: 5115000/A15; 5117000/A17; 5125500/A25; 5127000/A27; 5145000/A45; 5147799.002/A47; 5148000/A48; 5148000.01/A48; 5130M6A92/S30; 51386000/S38; Instruction & Explanation Sheet FR-I+D 34b; Legacy GL Approval Certificates 94 714-97 HH & 37676-85 HH. Performance Test AS-DG-001 dated 2017-09-22; FR-VER-02p dated 2019-05-10; Hydrostatic Test FR-PRO-19f dated 2019-05-10; Type Approval Assessment Report dated 2019-05-10.

Tests carried out

Performance Test, Hydrostatic Pressure Test

Production testing

The inlet elbow (nozzle) shall be subject to a pressure test at 1.5 times the design pressure. It has to be delivered with material certification "Test Report" with reference to this type approval certificate.

A function test has to be carried out with the air starter running at Gali test bench or with the air starter installed at the engine in the engine maker's premises.

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Marking of product

For traceability to this Type Approval, the products are to be marked with:

Manufacturer's short sign
Type
Serial-No.
Max Air Pressure
Sense of Turn

Periodical assessment

For retention of the type approval certificate periodical assessments shall be carried out at production places by DNVGL surveyor.

The objective of the periodical assessment is to verify that the design and production conditions for the type approval have not been altered.

Main scope of the assessment:

- verification of the production and quality control system
- review of quality control documentation of recent deliveries
- review of drawings in production to verify any design changes which may have an impact on data specified in the type approval certificate, performance and range of application
- verification of the product marking

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.