Certificate no.:
TAS000055G

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Lifting Gear

with type designation(s)
Sheaves G3-04145 and G3-04146

issued to
GOSAN, S.A.
Ortuella, Vizcaya, **Spain**

is found to comply with
DNV standard DNV-ST-0378 – Offshore and platform lifting appliances

Application:

Included on second page of this document

Issued at **Høvik** on **2026-01-16**
This Certificate is valid until **2031-01-15**.
DNV local unit: **Area NB/CMC Iberia**

for **DNV**

Approval Engineer: **Luisa Brites**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

Welded steel plate sheaves, double-web construction, with machined rope grooves. Sheave G3-04145 with groove diameter Ø630 mm; Sheave G3-04146 with groove diameter Ø1410 mm.

Application/Limitation

The sheaves covered by this Type Approval Certificate shall be permanently installed on a lifting appliance as part of the hoisting and/or luffing systems. They shall not be used as sub-components of loose gear.

Categorization/application: offshore
Design temperature: -20 °C
Operating conditions:

	Sheave G3-04145	Sheave G3-04146
Maximum static line pull	27.5 kN	152.5 kN
Design dynamic factor (DAF)	2.63	1.44
Maximum wrap angle	180°	180°
Maximum fleet angle	4°	4°
Wire rope diameter	30 mm	38 mm
F.E.M. 1.001 component group	E6 (B6/P3)	E6 (B6/P3)

Approval limitations:

1. It is the operator's duty to ensure that the real dynamic coefficient does not exceed the design dynamic factor. The maximum dynamic load shall include the contributions from the hook/block weight, wire rope weight, and the applicable design dynamic factor for the lifting appliance.

2. The bearings of the sheaves are excluded from this approval. INA bearings type SL045024-PP (for G3-04145) and SL045034-PP (for G3-04146), or equivalent bearings with verified strength and capacity, shall be installed in accordance with Gosan procedures.
Proper lubrication of the bearings is to be guaranteed during operation and use of the sheaves.

3. All materials shall be delivered with Type 3.1 certificates documenting mechanical properties and chemical composition in accordance with DNV-ST-0378 Sec. 3 and demonstrating compliance with the Type Approval documentation.

Type Approval documentation

Certification

This Type Approval covers design(s) only, i.e. the Type Approval is not valid for the final product, but may be used as basis for obtaining a product certificate.

If a DNV Product Certificate is required, the following conditions apply:
- the manufacturing survey shall be conducted by a DNV Surveyor.
- each sheave shall undergo overload testing according to DNV-ST-0378 Table 14-1.

Marking of product

Each sheave shall be marked according to DNV-ST-0378, section 14 [14.5].

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.

This certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com

END OF CERTIFICATE