DNV·GL

Certificate No:
TAS00001V8

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Seats

with type designation(s)
NorSap 1500, NorSap 1700

Issued to
NorSap AS
KRISTIANSAND S, Norway

is found to comply with
International Code of Safety for High-Speed Craft, 2000 - Annex 10

Application :

Pilot/crew seat for design level 2: gcoll 3 up to 12g

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Issued at **Høvik** on **2018-12-20**
This Certificate is valid until **2020-12-19**.
DNV GL local station: **Kristiansand S**

Approval Engineer: **Espen Kultorp**

for **DNV GL**

Christine Adal
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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Product description

Pilot/Crew-seat placed on a column mounted to deck with a base plate.

The Seat-design includes the following main parts:
- Seat with arm-rest and seat belt, column with foot-rest and base-plate.

Type/model designation: "NorSap 1500" and "NorSap 1700"
- Models "NorSap 1500": "6400", "6500", "6510", "6520"
- Models "NorSap 1700": "6700", "6710", "6720", "6730".

Basic construction consists of: Back/Bottom with upholstery, Beam, Legs and Floor-Rails.

Basic materials are aluminium-profiles/plates and steel bolts/details.

Upholstery consists of foams/fabrics composed of different types and quality.

Application/Limitation

The approval covers *strength and mounting* of Seats according to '2000 HSC-Code':
- *Design level 1* as specified for *collision* acceleration/g_{coll} up to 3g.
- *Design level 2* as specified for *collision* acceleration/g_{coll} from 3 to 12g.

Seats are approved for the following conditions *relative to the craft:*
- *Forward* facing, for g_{coll} up to 12g;
  - 1 seater with belt.

Seats are to be mounted to deck as tested (ref. documentation overleaf):
- Inserted/stiffened 12mm alu-plate for 6 off M10 A4 foundation-bolts.

Deck structure of craft is not part of this approval.

Any other arrangement/structure/mounting must be approved in each individual case.

Approval conditions

Type Approval is issued based on Class Programme DNVGL-CP-0140 "Passenger and crew seats".
The approval covers requirements to Seats in Ch.4.4, Ch.4.5 and Appendix 10 of the "International Code of Safety for High-Speed Craft, 2000", as referred to in DNV GL Rules for Classification: High Speed and Light Craft, Pt.3 Ch.7 at date of issue.

The approval covers the *strength* of Seat and mounting with respect to *collision* only.
Note: Restricted use of combustible materials according to HSC-Code sec.7.4.3 is not part of this approval.

Any Seat/Lap-belts are assumed separately approved according to relevant standard.

Any changes which may influence the strength or safety of the Seat, shall be reported for evaluating the need for revision of the approval.

Any additional equipment may be accepted based on documentation and/or survey prior to installation, showing that strength/safety will not be influenced.

Type Approval documentation

Seat construction is covered by the following main drawings/documents, which may give further reference to underlying details/drawings:

Tests carried out

Dynamic test according to "2000 HSC-Code" Annex 10. Sec.3 was undertaken at Autoliv Sverige AB, ref:
- Report no. TO-14001939, project no. 90210, test no. T-14014884 dated 2014.03.06;

Static test according to "2000 HSC-Code" Annex 10. Sec.2 was undertaken by Agdertesting, ref:
- Report no. 35/98, test no. ASP 1500, dated 1998.09.20

Note: Fire test of combustible materials according to HSC-Code sec.7.4.3 is not part of this approval.

Marking of product

Seats are to be marked with type/model-designation(s) and name of manufacturer.

Note: MED-marking (acc. to Maritime Equipment Directives 2014/90/EC) does not apply for strength of Seats, but applies to fire safety of combustible materials, which are not part of this approval

Certificate retention survey

DNV GL may perform Certification Retention Surveys at any time during the validity period of this certificate. The arrangement is to be in accordance with scopes described in DNVGL-CP-0338.

END OF CERTIFICATE