DNV·GL

Certificate No:
TAS000018X

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Seats

with type designation(s)
Force Series Seating (Sea Force, G-Force, Luxform, Helm & Fold-up)

Issued to
UES Seating (a division of UES Int'l Pty Ltd)
PENRITH NSW, Australia

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

Application :

Passenger seat for design level 1: gcoll up to 3g

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

Issued at **Høvik** on **2018-01-23**
This Certificate is valid until **2023-01-22**.
DNV GL local station: **Sydney**

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

Passenger seats placed on legs on base rails fixed to the deck of the craft.

Passenger / Crew seats of different design variants mounted on following options:

- *Designation 1 (D1):* Beam and leg assembly on base rails fixed to the deck of the craft. Models: Sea Force, G-Force, Luxform.
- *Designation 2 (D2):* Cast leg assembly either on 'leg bridge' fixed to deck of craft, or fixed directly to deck of craft. Model: Sea Force FUS.
- *Designation 3 (D3):* Pedestal leg type fixed to deck of the craft. Model: Helm.

Type/model designations:
"Force Series, Static", "Force Series, Recliner, "Force Series, FUS (Fold Up Seat)"

- Static seat on D1 mounting available with 15 configurations based on 5 heights ('Low Back'/'Medium Back Straight'/'High Back'/'High Back Extended'/'High Back Headrest') & 3 widths (450/480/500) – Models: Sea Force, G- Force, Luxform

- Static seat on D2 available with 15 configurations based on 5 heights ('Low Back'/'Medium Back Straight'/'High Back'/'High Back Extended'/'High Back Headrest') & 3 widths (450/480/500) – Models: Sea Force FUS

- Static seat on D3 mounting available with 30 configurations based on 5 heights ('Low Back'/'Medium Back Straight'/'High Back'/'High Back Extended'/'High Back Headrest') & 3 widths (480/500/550) & 2 seat pan lengths (245/315) – Models: Helm

- Reclining seat on D1 mounting available with 15 configurations based on 5 heights ('Low Back'/'Medium Back Straight'/'High Back'/'High Back Extended'/'High Back Headrest') & 3 widths (450/480/500) – Models: G-Force, Luxform

- Reclining seat on D3 mounting available with 30 configurations based on 5 heights ('Low Back'/'Medium Back Straight'/'High Back'/'High Back Extended'/'High Back Headrest') & 3 widths (480/500/550) & 2 seat pan lengths (245/315) – Models: Helm

Basic construction consists of: Bottom/back with upholstery, beam / legs / deck track or individual seat mounting of legs or pedestal.
Basic materials are aluminium-profiles/plates and steel bolts/details.
Seat - upholstery without / with foam is composed of different types and quality.

Application/Limitation

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

Seat is approved for the following conditions relative to the craft:
Forward or aftward facing:

- (D1) Up to 4 seats in a row placed on 2 legs (either 'standard' or 'HD Leg')
- (D1) Up to 5 seats in a row placed on 3 legs (either 'standard' or 'HD Leg')
- (D2) Single seat;
- (D3) Single seat;

T*ransverse* facing:

- (D1) Up to 4 seats in a row placed on 2 legs ('HD Leg')
- (D1) Up to 5 seats in a row placed on 3 legs ('HD Leg')
- (D2) Single seat;
- (D3) Single seat;

Seats are to be mounted to deck as tested (see documentation overleaf):

- (D1) "Standard Leg setup"; fixation by 2 of M10 304SS bolts with strut nut for each Leg and rivets spaced 50mm for deck-rails or welded 45% for deck-rails.

- (D1) "HD Leg setup"; fixation of 4 of M10 304SS bolts with strut nut for each HD Leg and rivets spaced 50mm for deck-rails or welded 45% for deck-rails.
- (D2) "FUS Leg setup"; fixation by 2 of M10 (or 3/8") 304SS bolts for each Leg to deck or to 'leg bridge' with strut nut, with leg bridge fixation by 6x rivets or welded 45% or greater.
- (D3) "Pedestal Leg setup"; fixation by 6 of M8 (or 5/16) 304SS bolts to deck.

Deck structure of craft is *not* part of this approval, but is assumed separately approved.

Seatbelts:
- For g_{coll} less than 3g, seatbelts are not required to be installed.

Approval conditions

Type Approval is issued based on Class Programme DNVGL-CP-0140. 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 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: Arr. of seats onboard is assumed separately approved wrt safe-seating/operation and the danger of blocking at evacuation
Note: Restricted use of combustible materials according to HSC-Code sec.7.4.3 is not part of this approval.

Any Seatbelts are assumed separately approved according to relevant standard.

Any changes which may influence the strength or safety of the Seat, shall be reported 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/mounting is covered by the following main drawings/documents, references:

Materials used are specified/referred in drawings/documentation above.

Tests carried out

Static test according to '2000 HSC-Code' Annex 10 section 2 was undertaken by
UES Seating P/L, reference:
- Test date 2012-02-19, as verified by DNV-Report 12914017, dated 2012-03-01.
- Test date 2012-02-29, as verified by DNV-Report 11914159, dated 2012-03-01.
- Test date 2013-07-17, as verified by DNV-Report 13914071, dated 2013-07-22.
- Test date 2013-07-16, 2013-08-13 and 2013-08-14 as verified by DNV-Report 13914076, dated 2013-08-16.
- Test date 2014-08-19, as verified by DNV GL-Report PP113557, dated 2014-08-28.
- Test date 2016-03-18, as verified by DNV GL-Report A0274543, dated 2016-09-06.
- Test date 2016-10-20, as verified by DNV GL-Report A0346931, dated 2016-10-20.
- Test date 2016-12-02, as verified by DNV GL-Report A0346783, dated 2016-12-02.

Peter L Smith Engineering Pty Ltd, reference:
- Test date 2010-05-27, as verified by DNV-Report 10914032, dated 2010-05-28.

Note: Fire test of combustible materials in accordance with 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