

Taishan Fiberglass Inc.

Att: Mr. Nie Yan Fang

**Date:** 2014-09-28  
**Our reference:** MPCCN440/MWF

**Your reference:**

DNV GL  
Qingdao Station  
Rm1402,14/F Shangri-La Office Tower  
No.9 Xiang Gang Zhong Lu  
Qingdao,Shandong  
266071  
Tel: +86 532 85712212  
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### Renewal of TA Certificate K-4088/4089/5342/5343

With reference to surveys carried out at your factory, enclosed please find following documents.

1. Our invoice no. 02759690/02759691 (1 original)
2. Type Approval Certificate No. K6056/6057/6058/6059 (one copy) 报告
3. Order confirmation signed on 2014-06-16 (one copy)

The original certificates have been sent to you by email. We appreciate your co-operation during the survey and look forward to service again.

Yours faithfully  
for DET NORSKE VERITAS (CHINA) CO., LTD., QINGDAO BRANCH

Sui Cheng Yong  
Station Manager

Wang Fang  
Secretary

Certificate No:

**K-6056**

File No:

**332.50**

Job Id:

**262.1-007040-3**

## TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Glass Fibre Products**

with type designation(s)

**EMC (powder type) mats and EMCL (emulsion type) mats**

Issued to

**Taishan Fiberglass Inc.****TAIAN SHANDONG, China**

is found to comply with

**Det Norske Veritas' Rules for Classification of High Speed, Light Craft and Naval Surface Craft****Det Norske Veritas Standards' for Certification No. 2.21, Craft, 2010****Det Norske Veritas' Standards for Certification No. 2.20, Lifeboats and Rescue Boats, 2007****Application :****For use in marine vessels in accordance with to stated Rules/Standards.**This Certificate is valid until **2018-06-30**.Issued at **Høvik** on **2014-08-22**DNV GL local station: **Qingdao**Approval Engineer: **Gisle Hersvik**for **DNV GL**

Digitally Signed By: Strande, Martin

Location: DNV Høvik, Norway

Signing Date: 2014-08-27

**Martin Strande**  
**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.

If any person suffers loss or damage which is proven to have been caused by any negligent act or omission of the Society, then the Society shall pay compensation to such person for his proven direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question. The maximum compensation shall never exceed USD 2 million.

In this provision the "Society" shall mean DNV GL AS as well as all its direct and indirect owners, affiliates, subsidiaries, directors, officers, employees, agents and any other person or entity acting on behalf of DNV GL AS.

Certificate No: **K-6056**  
File No: **332.50**  
Job Id: **262.1-007040-3**

## Product description

**EMC**; Powder type glass fibre mats; EMC225, EMC250, EMC300 and EMC450.

**EMCL**; Emulsion type glass fibre mats; EMCL225, EMCL250, EMCL300 and EMCL450.

The following properties have been verified by Type Testing of laminates:

| Property – Orientation                                                                                                        | Test Method                                               | EMC300 | EMCL450 |      |     |
|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|--------|---------|------|-----|
| Tensile Strength – 0°                                                                                                         | ISO 527                                                   | 79,3   | 114,6   | msmv | MPa |
| Tensile Modulus – 0°                                                                                                          | ISO 527                                                   | 6,7    | 7,6     | msv  | GPa |
| Tensile Elongation – 0°                                                                                                       | ISO 527                                                   | 1,1    | 1,5     | msmv | %   |
|                                                                                                                               |                                                           |        |         |      |     |
| Flexural Strength – 0°                                                                                                        | ISO 14125                                                 | 180,0  | 196,0   | msmv | MPa |
| Flexural Modulus – 0°                                                                                                         | ISO 14125                                                 | 7,6    | 8,3     | msv  | GPa |
| Flexural Deflection – 0°                                                                                                      | ISO 14125                                                 | 2,6    | 2,4     | msmv | %   |
|                                                                                                                               |                                                           |        |         |      |     |
| Tensile Strength – 90°                                                                                                        | ISO 527                                                   | 100,2  | 120,4   | msmv | MPa |
| Tensile Modulus – 90°                                                                                                         | ISO 527                                                   | 7,2    | 8,1     | msv  | GPa |
| Tensile Elongation – 90°                                                                                                      | ISO 527                                                   | 1,3    | 1,5     | msmv | %   |
|                                                                                                                               |                                                           |        |         |      |     |
| Flexural Strength – 90°                                                                                                       | ISO 14125                                                 | 158    | 148     | msmv | MPa |
| Flexural Modulus – 90°                                                                                                        | ISO 14125                                                 | 7,6    | 7,5     | msv  | GPa |
| Flexural Deflection – 90°                                                                                                     | ISO 14125                                                 | 2,4    | 2,7     | msmv | %   |
|                                                                                                                               |                                                           |        |         |      |     |
| Glass Fibre content                                                                                                           | ISO 1172                                                  | 29,8   | 33,8    | mean | %   |
| Resin                                                                                                                         | TM-189 (Unsaturated polyester resin)                      |        |         |      |     |
| Curing Procedure for Type Testing                                                                                             | 24 hrs at room temperature, 3 hrs at 60°C, 3 hrs at 110°C |        |         |      |     |
| Note:                                                                                                                         |                                                           |        |         |      |     |
| Curing procedure is different from what is given in Type Approval Programme No. 1-501.8.                                      |                                                           |        |         |      |     |
| Legend:                                                                                                                       |                                                           |        |         |      |     |
| <i>msmv</i> = Manufacturer's Specified Minimum Value, verified to be below mean - 2 x standard deviation of Type Test results |                                                           |        |         |      |     |
| <i>msv</i> = Manufacturer's Specified Value, verified to be within ± 10% of mean of Type Test results.                        |                                                           |        |         |      |     |
| <i>mean</i> = Mean of Type Test results                                                                                       |                                                           |        |         |      |     |

## Application/Limitation

The Type Approval is valid for the nominal weight variants; 200 to 450 g/m<sup>2</sup> for both EMC and EMCL.

## Type Approval documentation

1. Previous Type Approval Certificate No. K-4088.
2. Application for Type Approval of 2014-06-03.
3. Assessment Report from DNV GL Qingdao of 2014-06-03.
4. Letter from Taishan Fiberglass Inc. and list of renewal certificates.
5. Initial Surveys by DNV Qingdao of 2009-07-10.
6. Letter from DNV Qingdao of 2010-01-04, including Test Report No. 20090827 from Testing Center of Shanghai FRP Research Institute Co., Ltd. (TCSHFRP) & FRP Industry Test Point of Shanghai Testing Center, China of 2009-12-25.
7. Letter from DNV Qingdao of 2009-01-22, including product information and LR's Materials and NDE Department Technical Report No. 07/4151 of October 2007.

Certificate No: **K-6056**  
File No: **332.50**  
Job Id: **262.1-007040-3**

## Tests carried out

Type Testing carried out in accordance with **Type Approval documentation**, ref. Test Report No. 20090827 from Testing Center of Shanghai FRP Research Institute Co., Ltd. (TCSHFRP) & FRP Industry Test Point of Shanghai Testing Center, China of 2009-12-25.

## Marking of product

Product shall be marked with *manufacturer's name*: **Taishan Fiberglass Inc., Shandong, China** and *type designation*.

The marking is to be carried out in such a way that it is visible, legible and indelible. The marking of product is to enable traceability to the DNV GL Type Approval Certificate.

## Periodical assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Periodical Assessment to be performed after two (2) years (Certificate Retention) and at renewal after four (4) years (Certificate Renewal).

The main elements of the Periodical Assessment are to:

- Ensure that **Type Approval documentation** is available.
- Review design, materials, production process, and performance with respect to possible changes, in order to ensure compliance with **Type Approval documentation** and/or referenced material specifications.
- Ensure traceability between manufacturer's product marking and the DNV GL Type Approval Certificate.

END OF CERTIFICATE

Certificate No:  
**K-6057**  
File No:  
**332.50**  
Job Id:  
**262.1-007040-3**

## TYPE APPROVAL CERTIFICATE

### This is to certify:

#### That the Glass Fibre Products

with type designation(s)  
**Bi-axials (0°/90°) Woven Rovings (EWR) (300-800 g/m<sup>2</sup>)**

Issued to

**Taishan Fiberglass Inc.**  
**TAIAN SHANDONG, China**

is found to comply with

**Det Norske Veritas' Rules for Classification of High Speed, Light Craft and Naval Surface Craft**  
**Det Norske Veritas Standards' for Certification No. 2.21, Craft, 2010**  
**Det Norske Veritas' Standards for Certification No. 2.20, Lifeboats and Rescue Boats, 2007**

### Application :

**For use in marine vessels in accordance with to stated Rules/Standards.**

This Certificate is valid until **2018-06-30**.

Issued at **Høvik** on **2014-08-22**

DNV GL local station: **Qingdao**

Approval Engineer: **Gisle Hersvik**



for **DNV GL**

Digitally Signed By: **Strande, Martin**  
Location: **DNV Høvik, Norway**  
Signing Date: **2014-08-27**

**Martin Strande**  
**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. If any person suffers loss or damage which is proven to have been caused by any negligent act or omission of the Society, then the Society shall pay compensation to such person for his proven direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question. The maximum compensation shall never exceed USD 2 million. In this provision the "Society" shall mean DNV GL AS as well as all its direct and indirect owners, affiliates, subsidiaries, directors, officers, employees, agents and any other person or entity acting on behalf of DNV GL AS.

Certificate No: **K-6057**  
File No: **332.50**  
Job Id: **262.1-007040-3**

## Product description

**EW**R; Woven Roving glass fibre mats (0°/90°); EWR300, EWR400, EWR500, EWR570, EWR600 and EWR800.

The following properties have been verified by Type Testing of laminates:

| Property                                                                                                                                                                                                                                                                                      | Test Method                          | EW570                                                     |      |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------------------------------------------------------|------|-----|
| Tensile Strength                                                                                                                                                                                                                                                                              | ISO 527                              | 307,0                                                     | msmv | MPa |
| Tensile Modulus                                                                                                                                                                                                                                                                               | ISO 527                              | 17,6                                                      | msv  | GPa |
| Tensile Elongation                                                                                                                                                                                                                                                                            | ISO 527                              | 1,9                                                       | msmv | %   |
|                                                                                                                                                                                                                                                                                               |                                      |                                                           |      |     |
| Flexural Strength                                                                                                                                                                                                                                                                             | ISO 14125                            | 489,0                                                     | msmv | MPa |
| Flexural Modulus                                                                                                                                                                                                                                                                              | ISO 14125                            | 16,2                                                      | msv  | GPa |
| Flexural Deflection                                                                                                                                                                                                                                                                           | ISO 14125                            | 3,1                                                       | msmv | %   |
|                                                                                                                                                                                                                                                                                               |                                      |                                                           |      |     |
| Glass Fibre content                                                                                                                                                                                                                                                                           | ISO 1172                             | 54,5                                                      | mean | %   |
| Resin                                                                                                                                                                                                                                                                                         | TM-189 (Unsaturated polyester resin) |                                                           |      |     |
| Curing Procedure for Type Testing                                                                                                                                                                                                                                                             |                                      | 24 hrs at room temperature, 3 hrs at 60°C, 3 hrs at 110°C |      |     |
| Note:<br>Curing procedure is different from what is given in Type Approval Programme No. 1-501.8.                                                                                                                                                                                             |                                      |                                                           |      |     |
| Legend:<br><i>msmv</i> = Manufacturer's Specified Minimum Value, verified to be below mean - 2 x standard deviation of Type Test results<br><i>msv</i> = Manufacturer's Specified Value, verified to be within ± 10% of mean of Type Test results.<br><i>mean</i> = Mean of Type Test results |                                      |                                                           |      |     |

## Application/Limitation

The Type Approval is valid for the nominal weight variants; 300 to 800 g/m<sup>2</sup>.

## Type Approval documentation

1. Previous Type Approval Certificate No. K-4089.
2. Application for Type Approval of 2014-06-03.
3. Assessment Report from DNV GL Qingdao of 2014-06-03.
4. Letter from Taishan Fiberglass Inc. and list of renewal certificates.
5. Initial Surveys by DNV Qingdao of 2009-07-10.
6. Letter from DNV Qingdao of 2010-01-04, including Test Report No. 20090827 from Testing Center of Shanghai FRP Research Institute Co., Ltd. (TCSHFRP) & FRP Industry Test Point of Shanghai Testing Center, China of 2009-12-25.
7. Letter from DNV Qingdao of 2009-01-22, including product information and LR's Materials and NDE Department Technical Report No. 07/4151 of October 2007.

## Tests carried out

Type Testing carried out in accordance with **Type Approval documentation**, ref. Test Report No. 20090827 from Testing Center of Shanghai FRP Research Institute Co., Ltd. (TCSHFRP) & FRP Industry Test Point of Shanghai Testing Center, China of 2009-12-25.

Certificate No: **K-6057**  
File No: **332.50**  
Job Id: **262.1-007040-3**

## Marking of product

Product shall be marked with *manufacturer's name*: **Taishan Fiberglass Inc., Shandong, China** and *type designation*.

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## Periodical assessment

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Periodical Assessment to be performed after two (2) years (Certificate Retention) and at renewal after four (4) years (Certificate Renewal).

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- Ensure traceability between manufacturer's product marking and the DNV GL Type Approval Certificate.

END OF CERTIFICATE

Certificate No:

**K-6058**

File No:

**332.50**

Job Id:

**262.1-007040-3**

## TYPE APPROVAL CERTIFICATE

### This is to certify:

**That the Glass Fibre Products**

with type designation(s)

**Multi-layer fabric based roving. Bi-axials (EBLT, EBX, ECW): Woven Rovings (300-900 g/m<sup>2</sup>) + CSM (100-600 g/m<sup>2</sup>)**

Issued to

**Taishan Fiberglass Inc.**

**TAIAN SHANDONG, China**

is found to comply with

**Det Norske Veritas' Rules for Classification of High Speed, Light Craft and Naval Surface Craft**

**Det Norske Veritas Standards' for Certification No. 2.21, Craft, 2010**

**Det Norske Veritas' Standards for Certification No. 2.20, Lifeboats and Rescue Boats, 2007**

### Application :

**For use in marine vessels in accordance with to stated Rules/Standards.**

This Certificate is valid until **2018-06-30**.

Issued at **Høvik** on **2014-08-22**

DNV GL local station: **Qingdao**

Approval Engineer: **Gisle Hersvik**

for **DNV GL**



Digitally Signed By: Strande, Martin

Location: DNV Høvik, Norway

Signing Date: 2014-08-27

**Martin Strande**  
**Head of Section**

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Certificate No: **K-6058**  
File No: **332.50**  
Job Id: **262.1-007040-3**

## Product description

### Multi-layer fabric based roving

Bi-axials; **EBLT**, **EBX** and **ECW** Woven Rovings (300-900 g/m<sup>2</sup>) + CSM (100-600 g/m<sup>2</sup>) glass fibre products:

|                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>(0°/90°):</b><br>EBLT540(0,90)C150UP,<br>EBLT600(0,90)C200UP, EBLT600(0,90)C225UP, EBLT600(0,90)C300UP, EBLT600(0,90)C450UP<br>EBLT760(0,90)C300UP,<br>EBLT800(0,90)C225UP, EBLT800(0,90)C300UP, EBLT800(0,90)C450UP |
| <b>(+45°/-45°):</b><br>EBX600(-45/+45)C225UP,<br>EBX800(-45/+45)C225UP,<br>EBX600(-45/+45)C300UP                                                                                                                        |
| ECW300(90),<br>ECW300C/300W, ECW300C/500W, ECW450C/500W, ECW300C/570W, ECW450C/570W,<br>ECW300C/600W, ECW450C/600W, ECW450C/800W, ECW300C/800W                                                                          |

The following properties have been verified by Type Testing of laminates:

| Property – Orientation            | Test Method                                 | EBLT800(0/90)C450UP |      |     |
|-----------------------------------|---------------------------------------------|---------------------|------|-----|
| Tensile Strength – 0°             | ISO 527                                     | 139,1               | msmv | MPa |
| Tensile Modulus – 0°              | ISO 527                                     | 11,7                | msv  | GPa |
| Tensile Elongation – 0°           | ISO 527                                     | 1,5                 | msmv | %   |
| Flexural Strength – 0°            | ISO 14125                                   | 189,7               | msmv | MPa |
| Flexural Modulus – 0°             | ISO 14125                                   | 10,0                | msv  | GPa |
| Flexural Deflection – 0°          | ISO 14125                                   | -                   | msmv | %   |
| Tensile Strength – 90°            | ISO 527                                     | 109,1               | msmv | MPa |
| Tensile Modulus – 90°             | ISO 527                                     | 12,3                | msv  | GPa |
| Tensile Elongation – 90°          | ISO 527                                     | 1,2                 | msmv | %   |
| Flexural Strength – 90°           | ISO 14125                                   | 185,6               | msmv | MPa |
| Flexural Modulus – 90°            | ISO 14125                                   | 10,4                | msv  | GPa |
| Flexural Deflection – 90°         | ISO 14125                                   | -                   | msmv | %   |
| Glass Fibre content               | ISO 1172                                    | 41,3                | mean | %   |
| Resin                             | Crystic 272E(polyester resin) (Scott Bader) |                     |      |     |
| Curing Procedure for Type Testing | 24 hrs at room temperature, 16 hrs at 40°C  |                     |      |     |

#### Note:

Curing procedure is different from what is given in Type Approval Programme No. 1-501.8.

#### Legend:

*msmv* = Manufacturer's Specified Minimum Value, verified to be below mean - 2 x standard deviation of Type Test results

*msv* = Manufacturer's Specified Value, verified to be within ± 10% of mean of Type Test results.

*mean* = Mean of Type Test results

Certificate No: **K-6058**  
File No: **332.50**  
Job Id: **262.1-007040-3**

## Application/Limitation

The Type Approval is valid for the nominal weight variants; 300 to 900 g/m<sup>2</sup>.

## Type Approval documentation

1. Previous Type Approval Certificate No. K-5342.
2. Application for Type Approval of 2014-06-03.
3. Assessment Report from DNV GL Qingdao of 2014-06-03.
4. Letter from Taishan Fiberglass Inc. and list of renewal certificates.
5. Email from DNV Qingdao of 2012-10-24.
6. Initial Survey by DNV Qingdao of 2009-07-10.
7. Letter from DNV Qingdao of 2009-01-22, including product information and LR's Materials and NDE Department Technical Report No. 07/4151 of October 2007.

## Tests carried out

Type Testing carried out in accordance with **Type Approval documentation**, ref. LR's Materials and NDE Department Technical Report No. 07/4151 of October 2007.

## Marking of product

Product shall be marked with *manufacturer's name*: **Taishan Fiberglass Inc., Shandong, China** and *type designation*.

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## Periodical assessment

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END OF CERTIFICATE

Certificate No:  
**K-6059**  
File No:  
**332.50**  
Job Id:  
**262.1-007040-3**

## TYPE APPROVAL CERTIFICATE

### This is to certify:

**That the Glass Fibre Products**

with type designation(s)

**Multi-layer fabric based roving. Bi-axials (EBX): Woven Rovings (300-800 g/m<sup>2</sup>)**

Issued to

**Taishan Fiberglass Inc.**  
**TAIAN SHANDONG, China**

is found to comply with

**Det Norske Veritas' Rules for Classification of High Speed, Light Craft and Naval Surface Craft**

**Det Norske Veritas Standards' for Certification No. 2.21, Craft, 2010**

**Det Norske Veritas' Standards for Certification No. 2.20, Lifeboats and Rescue Boats, 2007**

### Application :

**For use in marine vessels in accordance with to stated Rules/Standards.**

This Certificate is valid until **2018-06-30**.

Issued at **Høvik** on **2014-08-22**

DNV GL local station: **Qingdao**

Approval Engineer: **Gisle Hersvik**

for **DNV GL**  
Digitally Signed By: Strande, Martin  
Location: DNV Høvik, Norway  
Signing Date: 2014-08-27



**Martin Strande**  
**Head of Section**

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Certificate No: **K-6059**  
File No: **332.50**  
Job Id: **262.1-007040-3**

## Product description

### Multi-layer fabric based roving

Bi-axials; EBX Woven Rovings (300-800 g/m<sup>2</sup>); **EBX300(+45/-45)UP**, **EBX600(+45/-45)UP** and **EBX800(+45/-45)UP**.

The following properties have been verified by Type Testing of laminates:

| Property – Orientation                                                                                                                                                                                                                                                   | Test Method                                  | EBX300(+45/-45)UP |      |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------|------|-----|
| Tensile Strength – +45°                                                                                                                                                                                                                                                  | ISO 527                                      | 159,1             | msmv | MPa |
| Tensile Modulus – +45°                                                                                                                                                                                                                                                   | ISO 527                                      | 12,1              | msv  | GPa |
| Tensile Elongation – +45°                                                                                                                                                                                                                                                | ISO 527                                      | 1,5               | msmv | %   |
|                                                                                                                                                                                                                                                                          |                                              |                   |      |     |
| Flexural Strength – +45°                                                                                                                                                                                                                                                 | ISO 14125                                    | 225,6             | msmv | MPa |
| Flexural Modulus – +45°                                                                                                                                                                                                                                                  | ISO 14125                                    | 9,7               | msv  | GPa |
| Flexural Deflection – +45°                                                                                                                                                                                                                                               | ISO 14125                                    | -                 | msmv | %   |
|                                                                                                                                                                                                                                                                          |                                              |                   |      |     |
| Tensile Strength – -45°                                                                                                                                                                                                                                                  | ISO 527                                      | 168,6             | msmv | MPa |
| Tensile Modulus – -45°                                                                                                                                                                                                                                                   | ISO 527                                      | 11,5              | msv  | GPa |
| Tensile Elongation – -45° °                                                                                                                                                                                                                                              | ISO 527                                      | 1,5               | msmv | %   |
|                                                                                                                                                                                                                                                                          |                                              |                   |      |     |
| Flexural Strength – -45°                                                                                                                                                                                                                                                 | ISO 14125                                    | 272,9             | msmv | MPa |
| Flexural Modulus – -45°                                                                                                                                                                                                                                                  | ISO 14125                                    | 9,4               | msv  | GPa |
| Flexural Deflection – -45°                                                                                                                                                                                                                                               | ISO 14125                                    | -                 | msmv | %   |
|                                                                                                                                                                                                                                                                          |                                              |                   |      |     |
| Glass Fibre content                                                                                                                                                                                                                                                      | ISO 1172                                     | 45,7              | mean | %   |
| Resin                                                                                                                                                                                                                                                                    | Crystic 272E (polyester resin) (Scott Bader) |                   |      |     |
| Curing Procedure for Type Testing                                                                                                                                                                                                                                        | 24 hrs at room temperature, 16 hrs at 40°C   |                   |      |     |
| Note:<br>Curing procedure is different from what is given in Type Approval Programme No. 1-501.8.                                                                                                                                                                        |                                              |                   |      |     |
| Legend:<br>msmv = Manufacturer's Specified Minimum Value, verified to be below mean - 2 x standard deviation of Type Test results<br>msv = Manufacturer's Specified Value, verified to be within ± 10% of mean of Type Test results.<br>mean = Mean of Type Test results |                                              |                   |      |     |

## Application/Limitation

The Type Approval is valid for the nominal weight variants; 300 to 800 g/m<sup>2</sup>.

## Type Approval documentation

1. Previous Type Approval Certificate No. K-5343.
2. Application for Type Approval of 2014-06-03.
3. Assessment Report from DNV GL Qingdao of 2014-06-03.
4. Letter from Taishan Fiberglass Inc. and list of renewal certificates.
5. Re-issuance of Type Approval Certificate No. K-4091.
6. Email from DNV of 2012-10-24.
7. Initial Survey by DNV Qingdao of 2009-07-10.
8. Letter from DNV Qingdao of 2009-01-22, including product information and LR's Materials and NDE Department Technical Report No. 07/4151 of October 2007.

Certificate No: **K-6059**  
File No: **332.50**  
Job Id: **262.1-007040-3**

### Tests carried out

Type Testing carried out in accordance with **Type Approval documentation**, ref. LR's Materials and NDE Department Technical Report No. 07/4151 of October 2007.

### Marking of product

Product shall be marked with *manufacturer's name*: **Taishan Fiberglass Inc., Shandong, China** and *type designation*.

The marking is to be carried out in such a way that it is visible, legible and indelible. The marking of product is to enable traceability to the DNV GL Type Approval Certificate.

### Periodical assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Periodical Assessment to be performed after two (2) years (Certificate Retention) and at renewal after four (4) years (Certificate Renewal).

The main elements of the Periodical Assessment are to:

- Ensure that **Type Approval documentation** is available.
- Review design, materials, production process, and performance with respect to possible changes, in order to ensure compliance with **Type Approval documentation** and/or referenced material specifications.
- Ensure traceability between *manufacturer's product marking* and the DNV GL Type Approval Certificate.

END OF CERTIFICATE