



# Germanischer Lloyd

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## APPLICATION FOR APPROVAL

for the manufacturing of components made of  
fibre-reinforced reaction resins (FRP)  
(pages 1 to 12)

### 1. GENERAL

1.1 Name and complete address of the applying workshop

Telephone:

Telefax:

1.2 Scope of production:

1.3 Number of workshop staff:

Number of these, engaged in the production of FRP components:

1.4 Production surface of workshop:

1.5 Workshop founded in (year):

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### 2. PERSONNEL

2.1 Responsible production manager: Deputy:

Name: \_\_\_\_\_

Qualification: \_\_\_\_\_

Telephone: \_\_\_\_\_

**Note:** Following assignment of the approval, the workshop is obliged to immediately advise GL in writing of any change in these positions.

2.2 Head of quality system

Name: \_\_\_\_\_

Qualification: \_\_\_\_\_

Telephone: \_\_\_\_\_

**Note:** Following assignment of the approval, the workshop is obliged to immediately advise GL in writing of any change in this position.

2.3 Technical supervisors (not staff members of quality system)

	Name,	Qualification,	responsible for
1.			
2.			
3.			

**Note:** Following assignment of the approval, the workshop is obliged to immediately advise GL in writing of any change in these positions.

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2.4 Staff members of the quality system :

	Name,	Qualification,	responsible for
1.			
2.			
3.			

2.5 Persons trained in gluing of components

	Name,	training course,	organisation
1.			
2.			
3.			

### 3. SHOP APPROVALS; THIRD-PARTY SUPERVISION

3.1 Are valid shop approvals issued by other supervisory organisations available?

yes       no

	Organisation,	Period of validity of approval
1.		./.
2.		./.
3.		./.

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### 4. INTERNAL WORKSHOP QUALITY ASSURANCE

4.1 Does a certified quality system as per ISO 9000 ff exist?

yes       no

Model:

ISO 9001                            ISO 9002                     

Certifying body:

Certified since:

4.2 Does another recognized quality assurance system exist?

Name:

Approved by:

Approved since:

4.3 Where no approved quality system as per 4.1/4.2 exists, in the annex a brief description of the internal workshop quality assurance measures (including a list of procedures/instructions) shall be submitted.

4.4 What is the scope of documentation linked to production?  
(Examples of such documentation are to be attached to this form.)

### 5. RECEIVING INSPECTION AND TESTING

5.1 Are goods inspected on receipt?

yes       no

5.2 Who is responsible?

\_\_\_\_\_  
Name,

\_\_\_\_\_  
Qualification

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1.

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2.

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5.3 Which is the scope of the receiving inspection?

5.4 Which certificates according to EN 10204 are required for the different materials from the relevant supplier?

5.5 Which are the test facilities the workshop has available for the receiving inspection (detailed description):

5.6 Are there tests within the scope of the receiving inspection being performed at a laboratory outside the workshop (address)?

5.7 In which way are receiving inspections documented?

5.8 Is an internal system employed for materials identification determining e.g. the kind of material, material designation, charge No., delivery condition?

yes       no

## 6. STORAGE OF MATERIALS

6.1 Are separate storage rooms available for:

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- |                               |                          |     |                          |    |
|-------------------------------|--------------------------|-----|--------------------------|----|
| 1. Resins                     | <input type="checkbox"/> | yes | <input type="checkbox"/> | no |
| 2. Adhesives                  | <input type="checkbox"/> | yes | <input type="checkbox"/> | no |
| 3. Reaction agents/hardeners  | <input type="checkbox"/> | yes | <input type="checkbox"/> | no |
| 4. Accelerators               | <input type="checkbox"/> | yes | <input type="checkbox"/> | no |
| 5. Fibre-reinforcing material | <input type="checkbox"/> | yes | <input type="checkbox"/> | no |
| 6. Core materials             | <input type="checkbox"/> | yes | <input type="checkbox"/> | no |

Which of the above materials are possibly stored together in the same space?

- 6.2 Are the storage spaces for the above materials equipped such as to ensure compliance with the following guidance values?

	air temperature			relative air humidity		
	(°C)	yes	no*	%	yes	no*
Resins	min. 10/ max. 20			max. 70		
Adhesives						
Reaction agents/ hardeners						
Accelerators						
Fibre-reinforcing material	max. 25			max. 65		
Core materials						

(Note: At any rate, the climatic guidance values as stated in the relevant manufacturers' specification are decisive for storage of the above materials. If their values differ from the a.m. guidance values the specification of the manufacturer of the material has to be submitted.)

**\*Note:** Where a guidance value is not observed, the value given by the workshop is to be indicated under "no".

- 6.3 Are the following materials stored in the workshops?

	yes	quantity required for	no
Resins		day(s)	

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Adhesives			day(s)	
Reaction agents/hardeners			day(s)	
Accelerators			day(s)	
Fibre-reinforcing material			day(s)	
Core materials			day(s)	

- 6.4 Is a measuring equipment available for continuous control of air temperature and relative air humidity?

kind of instruments	number
temperature measurement	
air humidity measurement	

- 6.5. Are the measuring instruments duly calibrated?

yes       no, calibration will be performed on: .....

Last calibration on:

If the calibration has not been performed by the manufacturer of the device or an acknowledged calibration institution, the relevant specification for calibration shall be submitted.

Calibrated by:

Next calibration on:

- 6.6 Has a staff member been named who is responsible for observance and regular checking of the storage conditions?

yes       no

- 6.7 Are prepregs employed?

yes       no

In the case of prepregs being used, the storage conditions are to be stated:

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### 7. LAMINATING WORKSHOPS

7.1 Are the workshops in which fibre-reinforced reaction resin components are produced enclosed spaces?

yes       no

7.2 Is adequate ventilation ensured, which will not affect the laminate quality?

yes       no

7.3 Are the production places adequately illuminated?

yes       no

7.4 Are the workshops equipped such that the climatic guidance values, indicated below can be adhered to during the production process?

			yes	no*
temperature	$T_{\min}$	16°C		
	$T_{\max}$	25°C		
relative air humidity	max.	70 %		

(Note: At any rate, the climatic guidance values as stated in the relevant specifications of the manufacturer of the materials are decisive for production. If these values differ from the a.m. guidance values those specifications of the manufacturer have to be submitted.)

**\*Note:** Where a guidance value is not observed, the value given by the workshop is to be indicated under "no".

7.5 Which kind of measuring equipment is available for continuous control of air temperature and relative air humidity?

kind of instruments	number
Temperature measurement	

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Air humidity measurement	
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7.6 Are the measuring instruments duly calibrated?

yes       no, calibration will be performed on: .....

Last calibrated on:

If the calibration has not been performed by the manufacturer of the device or an acknowledged calibration institution, the relevant specification for calibration shall be submitted.

Calibrated by:

Next calibration:

7.7 Are the above instruments located such as to be suited for checking the climatic conditions at the place of production?

yes       no

7.8 How are the climatic conditions documented during the production process and in which way this documentation is related to a specific component?

7.9 Are the workshops of sufficient size, so that during the manufacturing of components covered by the shop approval these are properly accessible during the production process?

yes       no

7.10 Is it ensured that hardening of the resin compounds is not affected by solar and/or infrared radiation, e.g. through lighting installations?

yes       no

7.11 Are machines producing dust operated in the laminating workshops?

yes       no

If so, which kind of machines?

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How is it ensured that laminating work is not adversely affected?

7.12 What kind of dosing equipment is available for the production of resin compounds?

7.13 Is this equipment calibrated?

yes       no

Which is the time period and the procedure for supervision of the equipment?

7.14 Has a staff member been appointed for the dosing of resin compounds?

yes       no

Name:

Qualification:

7.15 Which kind of release agents are used?

Are agents containing silicon employed in the laminating workshops?

yes       no

7.16 In which way it is ensured that components are accurately cured before demoulding?

7.17 Equipment available for curing under increased temperature:

Maximum possible curing temperature (°C):

How is the curing temperature controlled/supervised?

Maximum component size (length x width x height):

## 8. PRODUCTION PROCESSES

8.1 Shop approval is applied for the following production processes:

- Manual lamination procedure
- Semi-automatic manual lamination procedure

Description of method:

- Fibre resin spraying method

**Note:** Procedure test and approval of fibre sprayer as per Form F148.90

- Winding method
- Special method

Description of method:

## 9. REMARKS

(e.g. explanations on individual items of the present form and specific features of relevance for the purpose of this form)

10. SIGNATURES

It is hereby confirmed that the data indicated in the form are correct:

for the applicant: .....

Date: ..... Stamp

for GL: .....

Surveyor of Germanischer Lloyd

Date: ..... Stamp

Order No.

**Note:** Prior to the workshop inspection this form, duly completed and signed by a representative of the production workshop, is to be forwarded to Germanischer Lloyd Head office.

Following the workshop inspection this form, signed by a representative of the production workshop and by the local surveyor of Germanischer Lloyd, is to be forwarded to Germanischer Lloyd Head Office, together with the statement of fees F 354.