	FEDERATION EUROPEENNE DE LA MANUTENTION Product Group Cranes and Lifting Equipment	FEM 5.019
	A brief guide for identification of non-compliant Mobile Cranes - marking of machinery, documents, features -	01.2013 (E)

Available in English (EN) Sources see end of the document

1. INTRODUCTION

Mobile Cranes placed on the EU market for the first time must comply with the relevant EU legislation - and must meet all valid safety and environmental requirements. Machinery which does not fulfill these requirements is non-compliant and is not allowed to be placed on the EU market.

This guideline is meant to help to easily distinguish between compliant and non-compliant mobile crane. It describes only those essential criteria which can be checked even without in-depth knowledge and technical information. Thus, this brochure is not meant to be comprehensive but is designed to raise some red flags and to act as an “early warning” tool. However, if one or more items are out of line with the criteria then it is likely that you have non-compliant equipment. The import of non-compliant mobile cranes into the EU, and its sale and use, remains a problem for the European mobile crane industry. It is a source of unfair competition and compromises bona fide suppliers’ ability to fund R&D. This in turn threatens the competitiveness of the European mobile crane industry and the jobs it provides. Accidents with non-compliant machines are more likely to happen and those machines often do not meet the environmental standards demanded by the EU. Product Group Mobile Cranes of FEM, as the recognized organization representing and promoting European mobile crane manufacturers and related industries, calls upon all responsible authorities and stakeholders to work together to eliminate non-compliant mobile cranes in the EU.

2. SCOPE

This guide deals with the non-compliance of mobile cranes with regards to marking of machinery, documents and features relative to the safety of the equipment according to the applicable directives and product standard:

- Machinery Directive 2006/42/EC
- Outdoor noise directive 2000/14/EC
- EMC directive 2004/108/EC
- Directive on Emission of gaseous and particulate pollutants 97/68/EC for engine exhaust emission
- Mobile Crane harmonized Product Standard EN13000

Requirements and examples described below are focusing on the specific requirements for mobile cranes powered by an internal combustion engine.

Mobile crane designed, manufactured and placed on the market under the former directives may not comply with all criteria described in this guide.

The checklists in this guide are meant to provide guidance when assessing a crane being imported into the EEA. A non-compliance to a question/checkpoint (see lists below) does not necessarily mean that the machine cannot be placed or imported into the EU-market; it nevertheless gives a hint and the mobile crane shall be further inspected.

3. MOBILE CRANE TYPES

Mobile Cranes are defined according to the product standard EN13000.

Mobile cranes can be of following types:

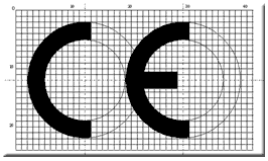
- Telescopic boom
- Lattice boom
- On wheels, including on commercial chassis
- On crawlers
- With boom and eventually additional jib
- With one or two cabins

Examples of mobile cranes:

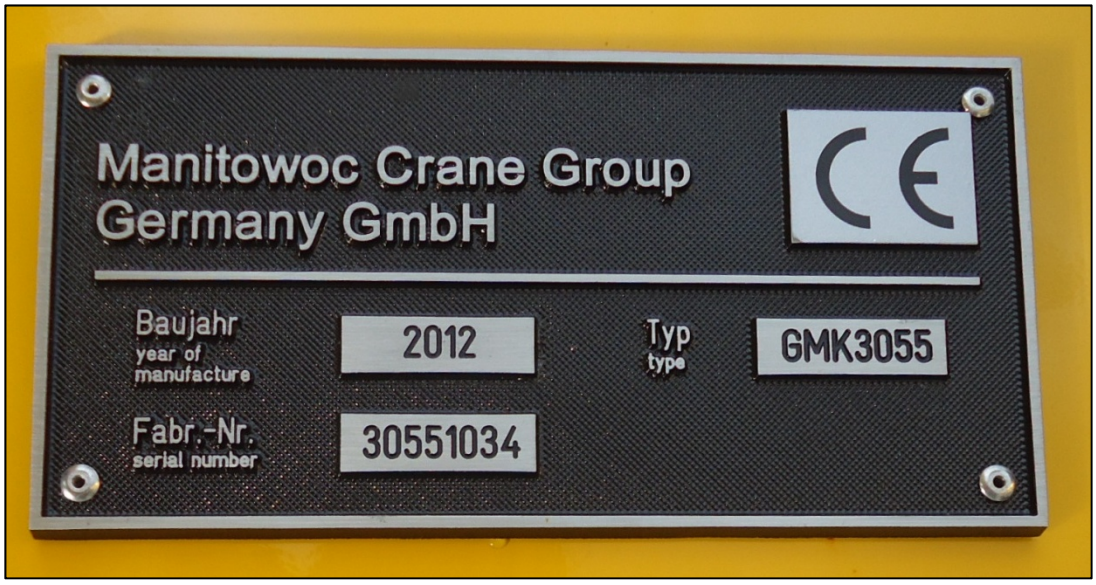
4. MARKING OF MOBILE CRANES

All mobile cranes placed on the EU market must be marked clearly and permanently with the following inform.

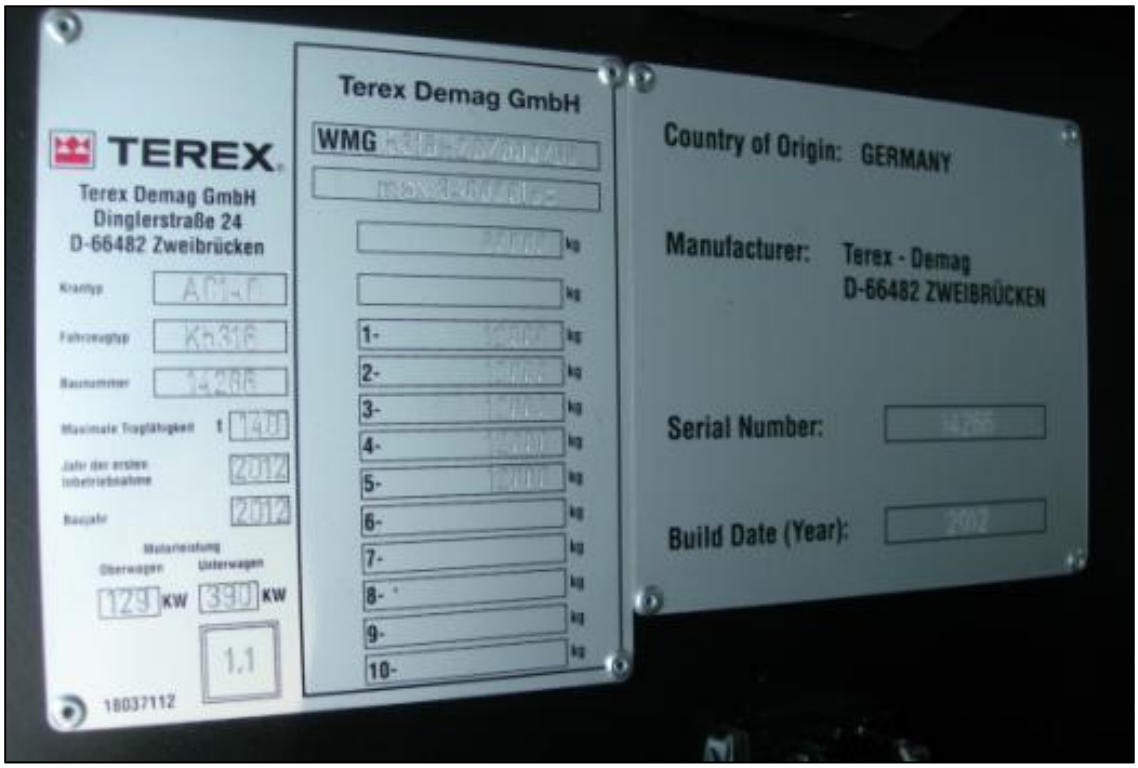
The placing on the European market is prohibited if the basic requirements are not met. This would be the case if the answer to any of the following questions is "No":

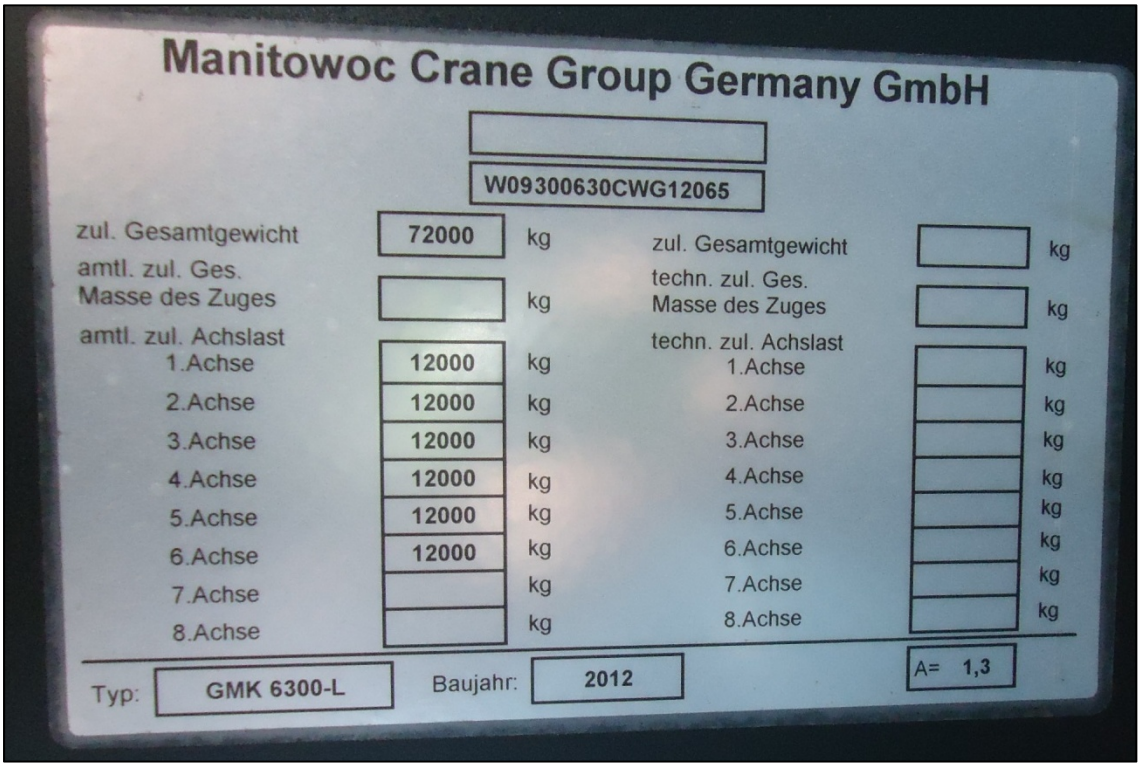
Item	Questions relative to Marking of the machine	Y	N
1	Is the marking permanently affixed?		
2	Is the marking written in one of the official EU languages?		
3	Does the marking contain name and address of the manufacturer?		
4	Does the Declaration of Conformity (DoC see below) mentions a person authorized to compile the technical file established in the EU? ?		
5	Does the marking show the CE marking?		
6	Is the CE sign in compliance with the required shape and dimensions? 		
7	Does the marking show the designation of the series, type or model?		
8	If the DoC (see below) contains a serial number (or range of serial numbers), does the marking show the identical serial number (or a serial number within the range) as specified on the DoC?		
9	Does the marking show the year of construction?		
10	Does the marking show the weight of the machine (in kg or t)?		
11	Does the marking show the engine power in kW?		
12	Is the text written on the marking plate correct? (e.g. typing error, accent or special characters as needed, à, é, è, ê, ä, ü, ö, ß, etc)?		
12	Is there any other marking plate on components (e.g. hook block)? If yes, is the content compliant and does not contain foreign characters (e.g. Chinese characters)?		
13	Is there an indication of the World Manufacturing Number on the chassis (VIN-number with 17 digits according 76/114/EEC for on-road mobile cranes or VIN-number with 8 digits)?		

Example of **compliant** Machine CE-Plates intended for the EU-market



Example of a **compliant** Machine Plate acc. to 74/114/EC

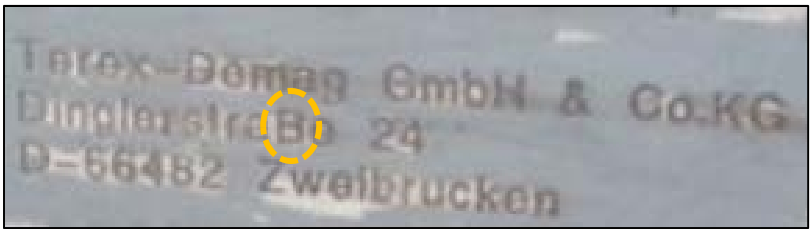




Example of a **Non-Compliant** Machine Plate

This marking plate is from a Fake Crane.

Based on the indicated year of manufacturing, the company name did not exist and the crane model did not exist!



There is a tipping error in the address (“B” instead of German special character “ß”);

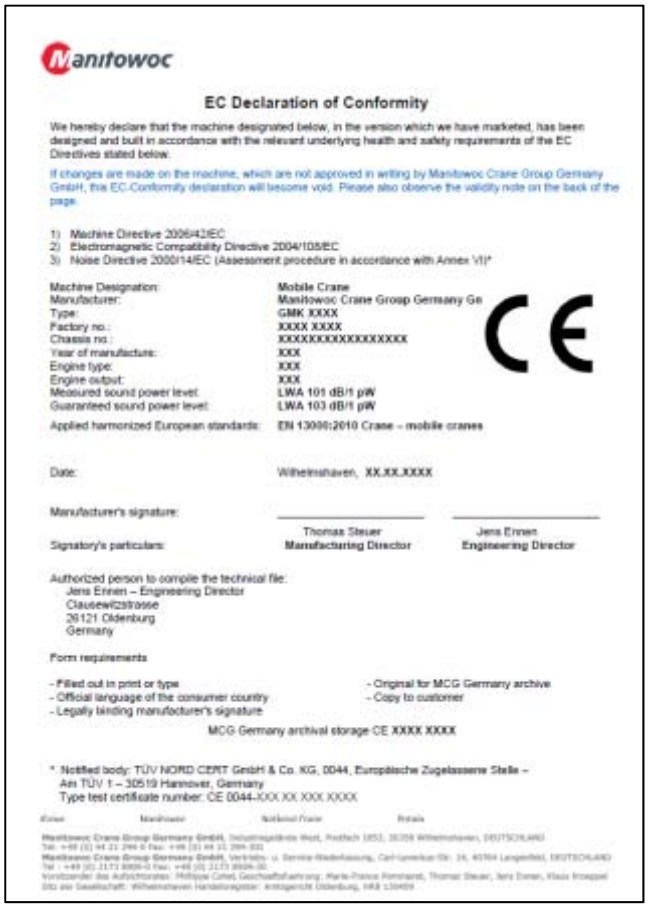
5. DECLARATION OF CONFORMITY (DoC)

All mobile cranes placed on the EU market for the first time must be accompanied by a "EC-Declaration of Conformity" (DoC). The EC-Declaration of Conformity for different directives may be separate.

The Declaration of Conformity is a critical document which shows which EC/EU directives the machine complies with. The placing on the European market is prohibited if the requirements are not met. This would be the case if the answer to any of the following questions is "No":

Item	Questions relative to the EC-Declaration of Conformity	Y	N
1	Is the DoC written in a Community language?		
2	Is at least one language version of the DoC written in the official EU language(s) of the member state in which it is used or to be used? (This criteria can only be checked if the country is known.)		
3	Does the DoC contain a statement that the machine meets the requirements of the following EC/EU directives: - 2006/42/EC – the Machinery Directive? - 2000/14/EC – the Directive on Noise Emissions in the Environment by Equipment for Use Outdoors? - 2004/108/EC – the Directive on Electromagnetic Compatibility?		
4	Does the DoC include the name and address of the manufacturer?		
5	Does the DoC of the crane mentions a name and address of the person authorized to compile the technical file, who must be established in the EU?;		
6	Does the DoC contain a description of the machine, e.g. "mobile crane"?		
7	Does the DoC include a serial number or a range of serial numbers?		
8	Does the DoC contain the name of the Notified body involved and the conformity assessment procedure required by the noise directive (2000/14/EC)?		
9	Does the DoC contain the "measured sound power level" (LWA in dB)?		
10	Does the DoC contain the "guaranteed sound power level" (LWA in dB)?		
11	Is the indication of the guaranteed sound power level on the crane identical to the value given as "guaranteed sound power level" (LWA in dB) in the DoC?		
12	Does the DoC contain date and place of the declaration?		
13	Does the DoC contain identity and signature of the person making the declaration?		

Examples of compliant CE-Declaration of Conformity:



Manitowoc

EC Declaration of Conformity

We hereby declare that the machine designated below, in the version which we have marketed, has been designed and built in accordance with the relevant underlying health and safety requirements of the EC Directives stated below:

If changes are made on the machine, which are not approved in writing by Manitowoc Crane Group Germany GmbH, this EC-Conformity declaration will become void. Please also observe the validity note on the back of the page.

1) Machine Directive 2006/42/EC
2) Electromagnetic Compatibility Directive 2004/108/EC
3) Noise Directive 2000/14/EC (Assessment procedure in accordance with Annex VI)*

Machine Designation:	Mobile Crane
Manufacturer:	Manitowoc Crane Group Germany Gn
Type:	GMK XXXX
Factory no.:	XXXX XXXX
Chassis no.:	XXXXXXXXXXXXXXXX
Year of manufacture:	XXX
Engine type:	XXX
Engine output:	XXX
Measured sound power level:	LWA 101 dB/1 pW
Guaranteed sound power level:	LWA 103 dB/1 pW
Applied harmonized European standards:	EN 13000:2010 Crane – mobile cranes

CE

Date: Wilhelmshaven, XX.XX.XXXX

Manufacturer's signature:

Signatory's particulars:	Thomas Steuer Manufacturing Director	Jens Ennen Engineering Director

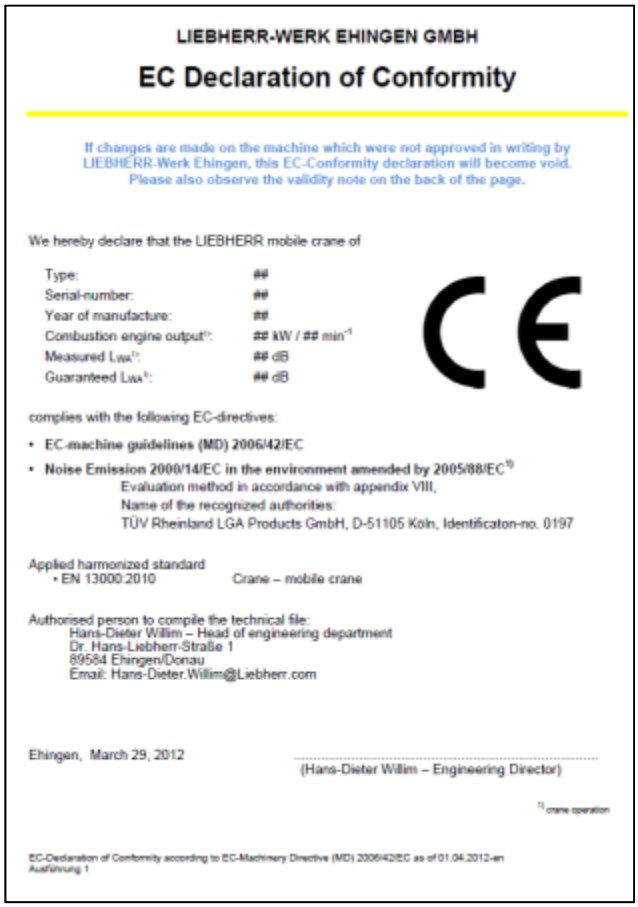
Authorized person to compile the technical file:
Jens Ennen – Engineering Director
Clausewitzstrasse
26121 Oldenburg
Germany

Form requirements

- Filled out in print or type
- Official language of the consumer country
- Legally binding manufacturer's signature
- Original for MCG Germany archive
- Copy to customer

MCG Germany archival storage CE XXXX XXXX

* Notified body: TÜV NORD CERT GmbH & Co. KG, 0044, Europäische Zugelassene Stelle – Am TÜV 1 – 30519 Hannover, Germany
Type test certificate number: CE 0044-XXX XX XXX XXXX



LIEBHERR-WERK EHINGEN GMBH

EC Declaration of Conformity

If changes are made on the machine which were not approved in writing by LIEBHERR-Werk Ehingen, this EC-Conformity declaration will become void. Please also observe the validity note on the back of the page.

We hereby declare that the LIEBHERR mobile crane of

Type:	##
Serial-number:	##
Year of manufacture:	##
Combustion engine output[2]:	## kW / ## min^{-1}
Measured L_{WA}[1]:	## dB
Guaranteed L_{WA}[1]:	## dB

CE

complies with the following EC-directives:

- **EC-machine guidelines (MD) 2006/42/EC**
- **Noise Emission 2000/14/EC in the environment amended by 2005/88/EC**[1]
  Evaluation method in accordance with appendix VIII,
  Name of the recognized authorities:
  TÜV Rheinland LGA Products GmbH, D-51105 Köln, Identificaton-no. 0197

Applied harmonized standard
• EN 13000:2010 Crane – mobile crane

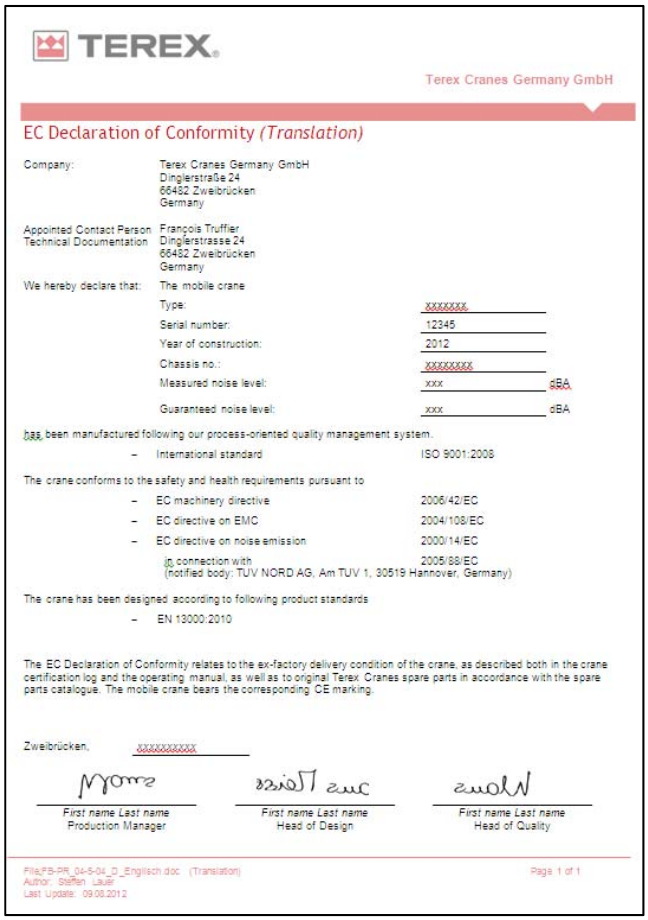
Authorised person to compile the technical file:
Hans-Dieter Willim – Head of engineering department
Dr. Hans-Liebherr-Straße 1
89584 Ehingen/Donau
Email: Hans-Dieter.Willim@Liebherr.com

Ehingen, March 29, 2012

(Hans-Dieter Willim – Engineering Director)

[1] crane operation

EC-Declaration of Conformity according to EC-Machinery Directive (MD) 2006/42/EC as of 01.04.2012-en Ausführung 1



TEREX

Terex Cranes Germany GmbH

EC Declaration of Conformity *(Translation)*

Company:	Terex Cranes Germany GmbH Dinglerstraße 24 66482 Zweibrücken Germany	
Appointed Contact Person Technical Documentation	François Truffier Dinglerstrasse 24 66482 Zweibrücken Germany	
We hereby declare that:	The mobile crane	
	Type:	XXXXXXX
	Serial number:	12345
	Year of construction:	2012
	Chassis no.:	XXXXXXXX
	Measured noise level:	xxx dBA
	Guaranteed noise level:	xxx dBA

has been manufactured following our process-oriented quality management system.

- International standard ISO 9001:2008

The crane conforms to the safety and health requirements pursuant to

- EC machinery directive 2006/42/EC
- EC directive on EMC 2004/108/EC
- EC directive on noise emission 2000/14/EC
  in connection with 2005/88/EC
  (notified body: TUV NORD AG, Am TUV 1, 30519 Hannover, Germany)

The crane has been designed according to following product standards

- EN 13000:2010

The EC Declaration of Conformity relates to the ex-factory delivery condition of the crane, as described both in the crane certification log and the operating manual, as well as to original Terex Cranes spare parts in accordance with the spare parts catalogue. The mobile crane bears the corresponding CE marking.

Zweibrücken, xxxxxxxxxx

First name Last name Production Manager	*First name Last name* Head of Design	*First name Last name* Head of Quality

File:FB-PR_04-5-04_D_Englisch.doc (Translation) Page 1 of 1
Author: Steffen Lauer
Last Update: 09.08.2012

6. INSTRUCTIONS

Instructions on the safe use and maintenance are a requirement of EU law and must accompany each mobile crane.

The placing on the European market is prohibited if the basic requirements are not met. This would be the case if the answer to any of the following questions is "No".

Item	Questions relative to the Instructions of the machine	Y	N
1	Are the instructions available in the machine?		
2	Do the words “Original instructions” appear on at least one of the instructions?		
3	Are all instructions marked either by the words “Original instructions” or “Translation of the original instructions”?		
4	Is at least one of the instructions written in the official EU language(s) of the member state in which the mobile crane is placed on the market or put into service?		
5	Do the instructions include name and address of the manufacturer?		
6	Are manufacturer's name and address, as specified on marking, DoC and instructions identical to each other?		
7	Do the instructions include a repeat of the machine markings (with or without the serial number)?		
8	Do the instructions include a repeat of the main items of the EC Declaration of Conformity (it can also include a copy of the DoC)?		
9	Do the instructions either contain the "A-weighted emission sound pressure level" (L_{pA} in dB(A)) or the statement that L_{pA} doesn't exceed the limit? (Noise at work stations)		
10	Do the instructions either contain the measured value of whole body vibration (in m/s^2) or the statement that it doesn't exceed 0,5 m/s^2?		
11	Do the instructions either contain the measured value of hand-arm vibration (in m/s^2) or the statement that it doesn't exceed 2,5 m/s^2?		

7. ENGINE EXHAUST EMISSION

Diesel engines from 18 to 560 kW in mobile machinery must comply with European Directive 97/68/EC (as amended) when the engine is placed on the EU market for the first time. For machines imported into the EU the engine is placed on the market when the machine clears customs. The engine has to comply with the latest emission stage of 97/68/EC or with the previous stage. In this case the engine has to be marked with a decal stating that this engine follows the flexibility scheme according 97/68/EC.

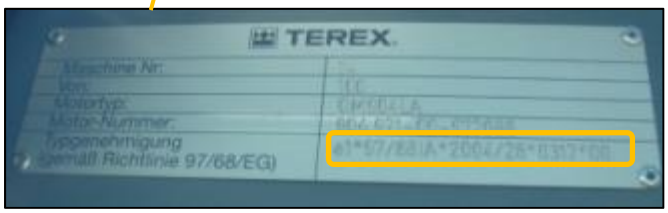
The compliance of the engine can be checked as follows:

Engine data plate:

The engine plate is usually part of the engine. The information can also be nailed or laser engraved on the engine block. The plate can also be located in the engine compartment or in the cabin (upper cabin in this example).
It is a requirement of the directive that the plate is visible in the machine. If there is no data plate visible the machine might be non-compliant.

The engine data plate must include the EC Type Approval Number. If it does not the machine is non-compliant.

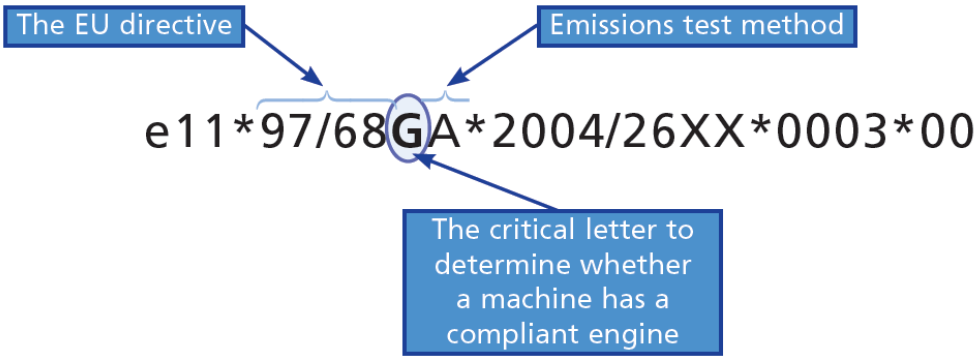
Engine EC type approval number



The Type Approval Number contains critical information on the engine compliance. See next sheet for detail.

To confirm the compliance of the engine it is only necessary to check one letter of the EC Type Approval Number, which gives information about compliance with regard to date of placing on the EU market.

The format of the “EC TYPE APPROVAL NO” on the engine data plate is as follows.

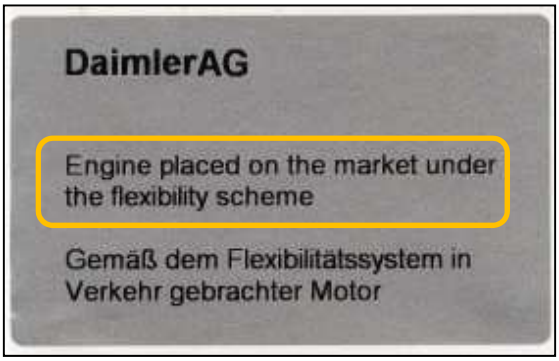


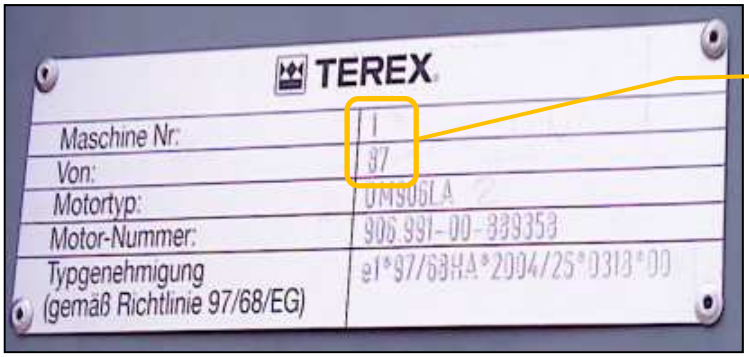
The critical letter relates to the emissions level and to the end date for legally selling the engine in the EU. The following table shows the last allowable date for first placing an engine installed on a machine on the EU market based on the critical letter.

A	31/12/2003	G	31/12/2009	L	31/12/2015
B	31/12/2004	H	31/12/2012	M	30/09/2016
C	31/03/2005	I	31/12/2013	N	30/09/2016
D	31/12/2008	J	31/12/2014 (for power < 56 kW)	P	No expiry
E	31/12/2007	J	31/12/2013 (for power ≥ 56 kW)	Q	No expiry
F	31/12/2008	K	No expiry	R	No expiry

In the example above an engine with this EC Type Approval Number could not be placed on the EU market for the first time after 31/12/2009.

In some special circumstances an engine can be legally placed on the market after these dates under the “flexibility scheme”. If so it will be marked “ Engine placed on the market under the flexibility scheme”. The machine will also have additional markings giving details of the flexibility scheme applied.





Engine number 1 out of a total of 87 engines permitted under the flexibility-scheme (figures are examples and depend on the particular case

8. NOISE EMISSION

All mobile cranes must be marked with their guaranteed sound power level (as per Machinery Directive 2006/42/EC Chapter 1.7.4.2).

The maximum allowable guaranteed sound power level depends on the engine power as per Noise Directive 2000/14/EC (amended 2005/88/EC). Check the power on the machine marking and check the sound power limit from the table below.

Engine Power kW		**Sound Power limit dB(A)**	
From	To	Stage I as from 3 January **2002**	Stage II as from 3 January **2006**
0	55	104	101
56	73	105	102
74	90	106	103
91	111	107	104
112	136	108	105
137	168	109	106
169	208	110	107
209	256	111	108
257	316	112	109
317	389	113	110
390	480	114	111

NOTE: this requirement depends on the age of the machine, i.e. on the year of manufacturing of the machine. This requirement may not be applicable for machines manufactured and placed on the European Market before the noise Directive came into force.

The guaranteed sound power level should be indicated at the machine.

9. SAFETY DECALS

All mobile cranes must bear safety pictorials to warn users and people in the vicinity of the crane about the possible hazards.

The safety decals can be pictorials.

The warning decals are usually represented as a yellow triangle; an additional optional part of the decal can show the avoidance; this example shows a sign for “falling hazard” as well as the corresponding avoidance, in the **first example**, the avoidance is a prohibition, in the **second example**, the avoidance is a mandatory action “wear a harness”.

The safety decals can also be in text. which must be written in the language where the crane is used.

Examples of safety signs typically used in the USA and **not intended** for Europe:

Example of **non-compliant** safety decals (not in a European official language):

SAFETY FEATURES

All mobile cranes must be equipped with safety equipment as required by the applicable European directives, rules and product standard EN13000; the main devices are following:

a. Load Moment Indicator and Event Recorder (also called Datalogger)

All mobile cranes manufactured from 2010 with a rated capacity of minimum 1 000 kg or an overturning moment of minimum 40 000 Nm shall be fitted with a load moment indicator (also called) rated capacity limiter.

b. Fire extinguisher

According to EN13000, The crane shall be equipped with a portable fire extinguisher for class A and B fires in accordance with EN 2 containing at least 6 kg of extinguishing agent. The extinguisher should preferably be located in a cabin or be accessible near to the control station. The filled weight of the extinguisher shall not exceed 20 kg..

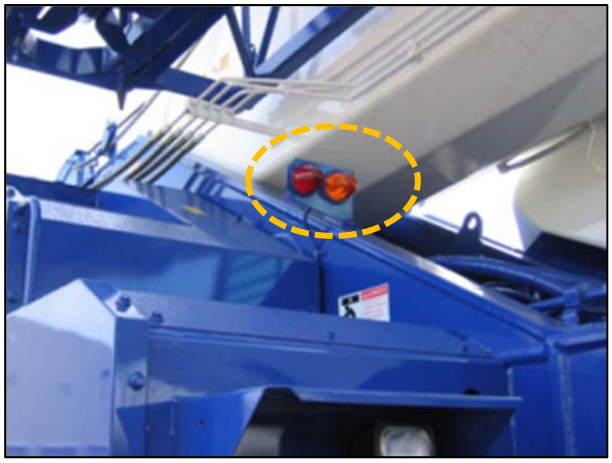
c. Wind speed indicator - Anemometer

If the boom combination length is in excess of 65m an anemometer is required; this device is usually located at the boom tip.

d. Visual and audible warnings outside

Mobile cranes shall be equipped with a visual and audible warning outside the crane. The audible warning is usually a buzzer or a siren; the visual warning can be a single light or a multi-color traffic light.

These indicators are connected to the load moment indicator of the crane and inform surrounding people on the actual load state of the crane.



e. Hook block

Hookblock or simple hook shall be provided with a specific CE-plate as per the requirement from European Machinery 2006/42/EC

f. Anti two-block (also called hoist limiter)

An anti-two block is a device to prevent a collision between the hook block and the sheaves of the boom tip. It usually consists in a sensor, a wire/chain and a weight placed around the hoist rope.

NOTE: the sensor should bear a CE-sign to comply with the applicable directive.

g. Handrails and Access

The European Product Standard EN13000 applicable for Mobile Cranes defines several criteria for handrails and access to the crane to mitigate falling hazard.

Therefore mobile cranes shall be equipped with suitable handrails and platforms. Note that due to the particular nature of the product, the design of the handrails or ladders may vary significantly; therefore, the examples given shall be considered as guidance only.

Following are examples of such equipment:

Acc. to the applicable product standard EN13000, the requirements related to the access to the crane cabin are following:

- **Carrier cabin:**

Crane travelling cabins with a floor higher than 0,65 m above ground shall have entrances and exits with:

a) step width of min. 300 mm;

b) step depth of min. 80 mm;

c) foot space height of min. 150 mm;

d) foot space depth of min. 150 mm.

Steps shall:

e) have the same distance of max. 400 mm to each other;

f) be arranged in one straight line.

The access shall have ergonomic handrails.

- **Upper crane cabin:**

Cabins with a floor higher than 1,0 m (to be measured from ground level) shall be provided with handholds. Other control stations or crane operating cabins with doors opening outwards above 1,0 m height shall be provided railings which prevent the operator from an accidental headlong fall.

Cabins with a floor higher than 2,5 m (to be measured from ground level) shall be provided with a platform and railings. This platform shall have enough space for at least two persons. Other control stations above 2,5 m height shall be provided with a platform with handholds and railings.

Cabin doors shall remain locked in open position

For mobile cranes equipped with an upper cabin, the sliding door shall have a locking system to hold the door in the open position.

h. Safety features for on-road vehicle

Mobile cranes travelling on public roads and placed on the European Market have to comply with European regulation applicable to on-road vehicle. These regulations are related to many components and devices. Visible from the outside are markings on mirrors, window glasses, safety coloring, towing hooks, etc. The affected components usually bear a marking with the corresponding European regulation codes.

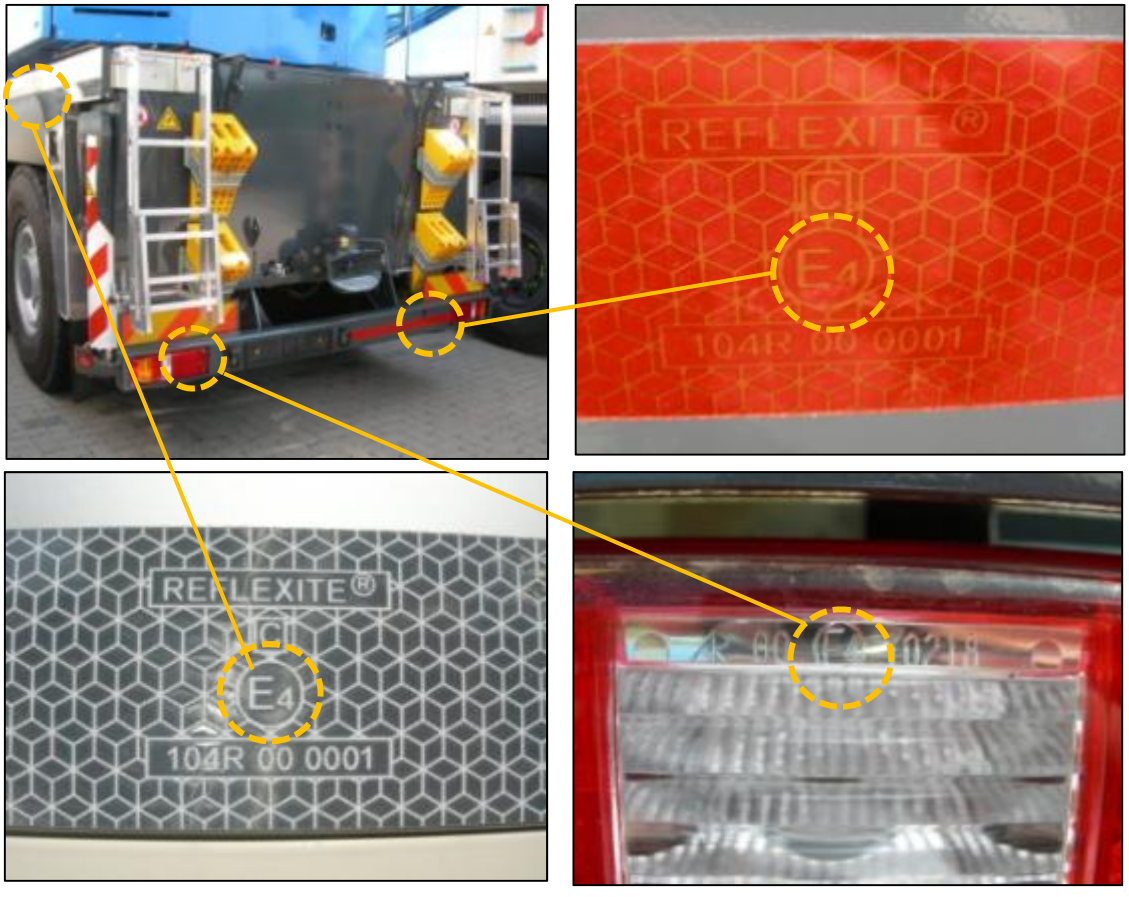
NOTE: following illustrations are examples and shall only serve as explanation and guidance for an easy identification of non-compliance.

Not having such markings on one or more items needed on vehicles can be considered as “red flad” and might indicate non-compliance of the product.

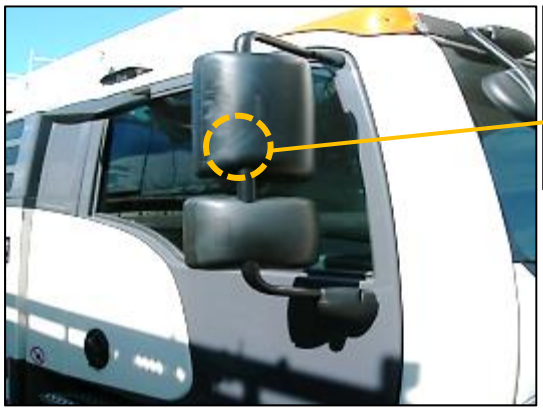
Explanation about the content of the marking:

E/e + number:	This indicates in which country the approval test has been conducted. As an example, E4 or e4 means Netherland.
xxx R + number:	xxx R corresponds to the Regulation ECE xxx (e.g. 104 corresponds to the ECE regulation 104 for reflective tapes). The last digits are the actual approval number for the particular product.

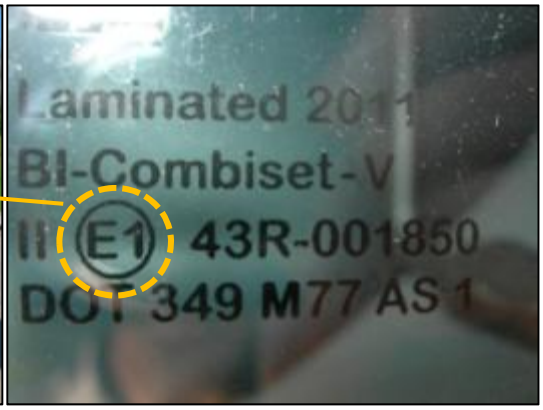
<u>Reflective tapes and lights</u>



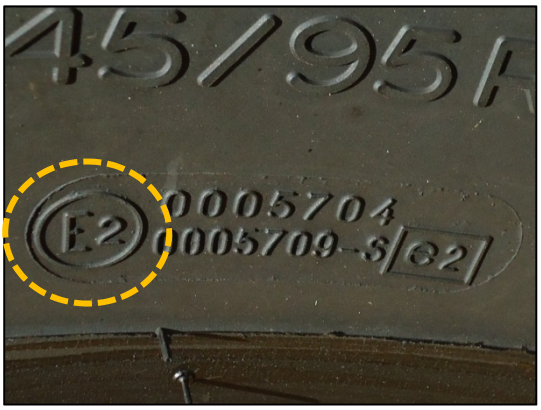
Mirrors



Window glasses



Tires



Retarder (if available)

Safety Belt

Accessories such as towing device

10. References

Established by the Technical Committee of Product Group Cranes and Lifting Equipment of the Fédération Européenne de la Manutention (FEM)

Secretariat: **Secretariat of FEM Product Group Cranes and Lifting Equipment**
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