

Type Approval Certificate

This is to certify that the undernoted products have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate is issued to:

PRODUCER	Matec Group Srl																				
PLACE OF PRODUCTION	Via 1° Maggio 7 - 20068 Peschiera Borromeo (MI) Italy																				
DESCRIPTION	COMPOTEC® Composite Flexible Hoses																				
TYPE AND RATINGS	<table><tr><td>Description:</td><td>Compotec® hoses EN 13765:2010 Type 3 CHEM PZ, CHEM PX, CHEM XX OIL ZZ, OIL ZX DRAINTEC XZ, DRAINTEC XX FOOD XX PTFE XZ, PTFE XX</td></tr><tr><td>Application:</td><td>Oil, Chemical, Hydrocarbons</td></tr><tr><td>Bore Diameter:</td><td>¾" to 12"</td></tr><tr><td>Temperature Range:</td><td>-40 to 80° C (-40 to 100° C PTFE Type)</td></tr><tr><td>Max Working Pressure:</td><td>15 bar 10 bar for diameters 10" to 12"</td></tr><tr><td>Description:</td><td>Compotec® hoses EN 13766:2010 Type 1 and 2 CYROTEC 660 LG XZ, CYROTEC 660 LG XX CYROTEC 660 N XZ, CYROTEC 660 N XX</td></tr><tr><td>Application:</td><td>LPG and LNG system</td></tr><tr><td>Bore Diameter:</td><td>¾" to 12"</td></tr><tr><td>Temperature Range:</td><td>-50 to 80° C (Type 1) -175 to 80 C (Type 2)</td></tr><tr><td>Max Working Pressure:</td><td>Type 1 LPG 25 bar Type 2 LNG 13 bar 10 bar when used for IBC and IGC cargoes and for diameters 10" to 12"</td></tr></table>	Description:	Compotec® hoses EN 13765:2010 Type 3 CHEM PZ, CHEM PX, CHEM XX OIL ZZ, OIL ZX DRAINTEC XZ, DRAINTEC XX FOOD XX PTFE XZ, PTFE XX	Application:	Oil, Chemical, Hydrocarbons	Bore Diameter:	¾" to 12"	Temperature Range:	-40 to 80° C (-40 to 100° C PTFE Type)	Max Working Pressure:	15 bar 10 bar for diameters 10" to 12"	Description:	Compotec® hoses EN 13766:2010 Type 1 and 2 CYROTEC 660 LG XZ, CYROTEC 660 LG XX CYROTEC 660 N XZ, CYROTEC 660 N XX	Application:	LPG and LNG system	Bore Diameter:	¾" to 12"	Temperature Range:	-50 to 80° C (Type 1) -175 to 80 C (Type 2)	Max Working Pressure:	Type 1 LPG 25 bar Type 2 LNG 13 bar 10 bar when used for IBC and IGC cargoes and for diameters 10" to 12"
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Certificate No.	13/00002																				
Issue Date	15 January 2013																				
Expiry Date	14 January 2018																				
Sheet	1 of 2																				



W.H. Chan
London Design Support Office
Lloyd's Register EMEA

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STANDARDS/CODES	LR Rules and Regulations for the Classification of Ships; LR Rules and Regulations for the Classification of Fixed Offshore Installations; EN 13765:2010; EN 13766:2010; IMO IGC Code; IMO IBC Code.
APPLICATION	Flexible hoses for Oil, chemical and Hydrocarbon Systems in LNG/LPG carriers, marine and offshore applications.
OTHER CONDITIONS	The hose types are to be suitable for the service conditions. The hose assemblies are to be installed and tested to the satisfaction of the attending surveyor.

"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid certificate."

The Design Appraisal Document No. 13/00002 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Certificate No.	13/00002
Issue Date	15 January 2013
Expiry Date	14 January 2018
Sheet	2 of 2

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Issue number 1

DESIGN APPRAISAL DOCUMENT

Date 15 January 2013	Quote this reference on all future communications LDSO/ENG/ WHC /WP12906142/WO3105439
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LLOYD'S REGISTER TYPE APPROVAL SYSTEM, 2002.

Issued to: MATEC GROUP SRL

for: COMPOTEC® COMPOSITE FLEXIBLE HOSES

TYPE APPROVAL CERTIFICATE No. 13/00002

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System, 2002 and this Design Appraisal Document forms part of the Certificate.

Producer: MATEC GROUP SRL

Place of Production: Via 1^o Maggio,
7 – 20068 Peschiera
Borromeo (MI)
Italy

Description: COMPOTEC® Composite Flexible Hoses

Type and Ratings:

Description:	Compotec® hoses EN 13765:2010 Type 3
Type:	CHEM PZ, CHEM PX, CHEM XX OIL ZZ, OIL ZX DRAINTEC XZ, DRAINTEC XX FOOD XX PTFE XZ, PTFE XX
Application:	Oil, Chemical, Hydrocarbons
Bore Diameter:	¾" to 12"
Temperature Range:	-40 to 80° C (-40 to 100° C PTFE Type)
Max Working Pressure:	15 bar 10 bar for diameters 10" to 12"
Description:	Compotec® hoses EN 13766:2010 Type 1 and 2
Type:	CYROTEC 660 LG XZ, CYROTEC 660 LG XX CYROTEC 660 N XZ, CYROTEC 660 N XX
Application:	LPG and LNG system
Bore Diameter:	¾" to 12"
Temperature Range:	-50 to 80° C (Type 1) -175 to 80° C (Type 2)
Max Working Pressure:	Type 1 LPG 25 bar Type 2 LNG 13 bar 10 bar when used for IBC and IGC cargoes and for diameters 10" to 12"

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Supplementary Type Approval Terms and Conditions

- Standards/Codes:** LR Rules and Regulations for the Classification of Ships;
LR Rules and Regulations for the Classification of Fixed Offshore Installations;
EN 13765:2010;
EN 13766:2010;
IMO IGC Code;
IMO IBC Code.
- Application:** Flexible hoses for Oil, Chemical and Hydrocarbon Systems in LNG/LPG carriers, marine and offshore applications.
- Other Conditions:** The hose types are to be suitable for the service conditions.

The hose assemblies are to be installed and tested to the satisfaction of the attending surveyor.



Warren Chan
Engineering
London Design Support Office

Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the Lloyd's Register Type Approval System Procedure.

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DESIGN APPRAISAL DOCUMENT

Date 15 January 2013	Quote this reference on all future communications LDSO/ENG/ WHC /WP12906142/WO3105439
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1. The Documents listed below have been examined

Drawing No.	Rev.	Title	Status	Date
-	-	Type approval form 2571	B	10 Jan 2013
-	-	COMPOTEC data sheets	B	10 Jan 2013
MLN 1291361	-	Inspection and surveillance of production facilities	B	10 Jan 2013
REL/0092/10	-	OMECO Technical report	B	10 Jan 2013
REL/0093/10	-	OMECO Technical report	B	10 Jan 2013
1A/09/2006	-	DNV Burst test report	B	10 Jan 2013
2A/09/2006	-	DNV Burst test report	B	10 Jan 2013
3A/09/2006	-	DNV Burst test report	B	10 Jan 2013
SAMPLE 4" - 0	-	Russian Maritime Register test report	B	10 Jan 2013
SAMPLE 6" - B	-	Russian Maritime Register test report	B	10 Jan 2013
SAMPLE 10" - C	-	Russian Maritime Register test report	B	10 Jan 2013
REL/0125/10/e	-	OMECO Technical report	B	10 Jan 2013
REL/0126/10/e	-	OMECO Technical report	B	10 Jan 2013
1/2006	-	RINA INDUSTRY chemical test report	B	10 Jan 2013
2/2006	-	RINA INDUSTRY chemical test report	B	10 Jan 2013
3/2006	-	RINA INDUSTRY chemical test report	B	10 Jan 2013
4/2006	-	RINA INDUSTRY chemical test report	B	10 Jan 2013
5/2006	-	RINA INDUSTRY chemical test report	B	10 Jan 2013
Form 2502	-	Request for marine services	B	10 Jan 2013
Rif.ME/127en	1	ACCREDIA Customers letter	B	10 Jan 2013
0003	3	Accreditation Certificate	B	10 Jan 2013
090	14	Accreditation Certificate	B	10 Jan 2013
0003 Sede A	48	ACCREDIA Elenco Prove Accreditate	B	10 Jan 2013
M023	-	MATEC visit report	B	10 Jan 2013

Status Key

B Examined for compliance with the design and testing requirements of the Rules and Codes listed above and considered in order.

Part 1A
 Subject: Hose Assemblies
 Product: Flexible Hoses (Part 1A)

Description of Product		Type	Details of Approval	Application	Remarks	Cert. No.
Producer/Licence No.	Type					
Compotec Group Srl, Via 1° Maggio, 20068 Peschiera, Carpi (MO), Italy.	CHEM PZ, CHEM PX, CHEM XX, OIL ZZ, OIL ZX, DRAINTEC XZ, DRAINTEC XX FOOD XX PTFE XZ, PTFE XX CYROTEC 660 LG XZ, CYROTEC 660 LG XX CYROTEC 660 N XZ, CYROTEC 660 N XX	COMPOTEC* Composite Flexible Hoses Description: Compotec* hoses EN 13765:2010 Type 3 Application: Oil, Chemical, Hydrocarbons Bore Diameter: 3/4" to 12" Temperature Range: -40 to 80° C (-40 to 100° C (PTFE Type) Max Working Pressure: 15 bar 10 bar for diameters 10" to 12" Description: Compotec* hoses EN 13766:2010 Type 1 and 2 Application: LPG and LNG system Bore Diameter: 3/4" to 12" Temperature Range: -50 to 80° C (Type 1) -175 to 80° C (Type 2) Max Working Pressure: Type 1 LPG 25 bar Type 2 LNG 13 bar 10 bar when used for IBC and IGC cargoes and for diameters 10" to 12"	Flexible hoses for Oil, Chemical and Hydrocarbon Systems in LNG/LPG carriers, marine and offshore applications.	Expires: 14 January 2018 See Certificate for Other Conditions.	13/00002	