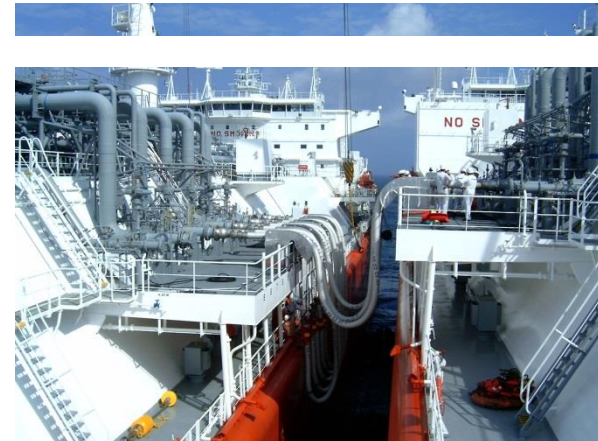
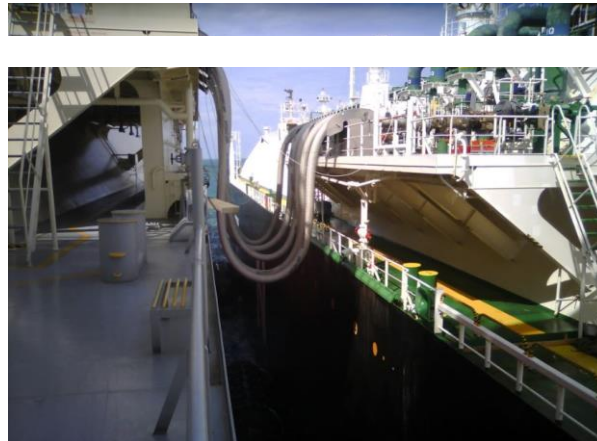
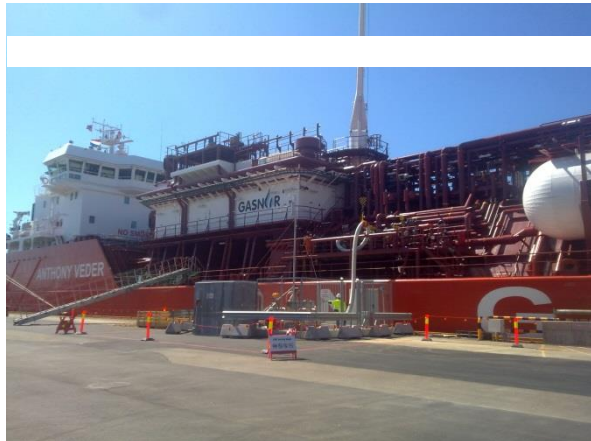




Introduction Gutteling LNG Transfer Hoses



Gutteling is proud to offer you this introduction and reference overview of more than 10 years experience in the LNG transfer industry

Gutteling has qualified **Multi-LNG White STS** Transfer Hoses as first manufacturer in the World to the latest International rules for Ship to Ship LNG transfer; EN 1474-II in 2010 and to EN 12434 in 2014

DNV GL

Certificate No: **P-14983**
File No: **791.74**
Job Id: **262.1-007657-2**

TYPE APPROVAL CERTIFICATE

This is to certify:
That the Bulk Loading Hoses with Permanently Fitted Couplings

with type designation(s)
MULTI-LNG WHITE STS

Issued to
Gutteling B.V.
Rotterdam, Netherlands

is found to comply with
Det Norske Veritas' Rules for Classification of Ships Pt.5, Ch.5 "Liquefied Gas Carriers"
IMO IGC-Code
EN 1474-2
EN 12434:2000 Cryogenic vessels - Cryogenic flexible hoses (Corrigendum AC:2001 incorporated)

Application :
The hoses may be used for ship to ship transfer of LNG.

Temperature range: **-196°C to +50°C**
Max. working press.: **10 bar**
Sizes: **4", 6", 8" and 10"**

This Certificate is valid until **2018-06-30**.
Issued at **Høvik** on **2014-08-04**

DNV GL local station: **Rotterdam**

Approval Engineer: **Tom Berg-Nielsen**

for **DNV GL**
Digitally Signed By: **Marianne Spøren Marveng**
Location: **DNV Høvik, Norway**
Signing Date: **2014-08-04**

Marianne Spøren Marveng
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.

Form code: TA 1411a Revision: 7014-05
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www.dnvgl.com Page 1 of 3

References LNG Ship to Ship transfers

Exmar / Excelerate

LNGRV Excalibur	; 9 lengths x 15,00mtr	Multi-LNG White STS	8"	Bureau Veritas
LNGRV Excelsior	; 9 lengths x 15,00mtr	Multi-LNG White STS	8"	Bureau Veritas
LNGRV Exquisite	; 9 lengths x 15,00mtr	Multi-LNG White STS	8"	Bureau Veritas
LNGRV Expedient	; 9 lengths x 15,00mtr	Multi-LNG White STS	8"	Bureau Veritas
LNGRV Exemplar	; 9 lengths x 15,00mtr	Multi-LNG White STS	8"	Bureau Veritas
LNGRV Express	; 9 lengths x 15,00mtr	Multi-LNG White STS	8"	Bureau Veritas
LNGRV Excelerate	; 8 lengths x 18,00mtr	Multi-LNG White STS	10"	Bureau Veritas
LNGRV Exemplar	; 8 lengths x 18,00mtr	Multi-LNG White STS	10"	Bureau Veritas



JAPEX / MOL

Ship to Ship operations	; 3 lengths x 27,00mtr	Multi-LNG White STS	8"	ClassNK
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Hoegh LNG

Independence (Klaipedos)	; 6 lengths x 18,50mtr	Multi-LNG White STS	10"	DNV
Hoegh Gallant (Egypt)	; 6 lengths x 18,50mtr	Multi-LNG White STS	10"	DNV
PGN FSRU Lampung	; 6 lengths x 18,50mtr	Multi-LNG White STS	10"	DNV
PGN FSRU Lampung	; 3 lengths x 27,00mtr	Multi-LNG White STS	8"	DNV
Hoegh Grace	; 6 lengths x 18,50mtr	Multi-LNG White STS	10"	DNV
Hull 2552	; 6 lengths x 18,50mtr	Multi-LNG White STS	10"	DNV



Shell / Anthony Veder

1 shipset Composite hoses	; 2 lengths x 12,00mtr	Multi-LNG White STS	4"	DNV
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Golar

Golar Tundra	; 7 lengths x 18,00mtr	Multi-LNG White STS	10"	DNV
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Bumi Armada (via MIB)

Malta FSRU Project	; 5 lengths x 15,00mtr	Multi-LNG White STS	10"	Bureau Veritas
	; 2 lengths x 20,00mtr	Multi-LNG White STS	10"	Bureau Veritas



New Fortress Energy

Jamaica Projects	; 4 lengths x 18,00mtr	Multi-LNG White STS	8"	DNV
	; 3 lengths x 15,00mtr	Multi-LNG White STS	8"	DNV



LNGSTS

Jamaica Projects	; 3 lengths x 18,00mtr	Multi-LNG White STS	8"	DNV
Jamaica Projects (MOL)	; 7 lengths x 18,00mtr	Multi-LNG White STS	10"	DNV



References LNG bunker and other operations

Marathon Oil

EG LNG Terminal ; 3 lengths x 12,00mtr Multi-LNG White 10" DNV



Skangas Øra Terminal

Ship to Shore bunker facility ; 2 lengths x 13,00mtr Multi-LNG White 8" Bureau Veritas



Seagas bunker vessel

LNG bunkering Viking Grace ; 2 lengths x different lengths Mult-LNG White 6" DNV



TOTE Maritime

LNG bunker Jacksonville ; Several lengths, several sizes Multi-LNG White 6" / 4" / 2"



Deen Shipping

Argonon, The Netherlands ; 1 lengths x 13,00 meter Multi-LNG White 1,5"



Shell

Greenstream, The Netherlands ; 1 length x 13,00mtr Multi-LNG White 1,5"



LNG Europe

Truck to Ship bunkering ; Several lengths Multi-LNG White 1,5"



Schenk Transport

LNG loading / unloading ; Several lengths Multi-LNG White 1,5"



Rolande LNG

LNG loading / unloading ; Several lengths Multi-LNG White 1,5"



Harvey Gulf

Harvey Energy Louisiana, USA ; Several lengths Multi-LNG White 3"



Svitzer Salvage, The Netherlands

Emergency STS hoses ; 8 lengths x 18,00mtr Multi-LNG White STS 8" DNV
Used for the First ESTS operation in the World in Singapore, January 2014



Since 2005 delivery of Multi-LNG White STS 8" hoses

Length : 15,00 meter

Quantity : 9 hoses per vessel, 8 FSRU's

Transfers : > 1000

Vessel (FSRU): Excelerate, Exemplar, Excalibur, Excellence, Excelsior, Explorer, Expedient, Exquisite, Experience



Since 2011 delivery of Multi-LNG White STS 8" hoses

Length : 27,00 meter

Quantity : 3 hoses

Transfers : > 30



Since 2014 delivery of Multi-LNG White STS 10" hoses

Length : 18,50 meter

Quantity : 6 hoses per vessel, 4 FSRU's

Vessel (FSRU): Hoegh Grace, Hoegh Gallant, Independence, PNG FSRU Lampung



HÖEGH LNG



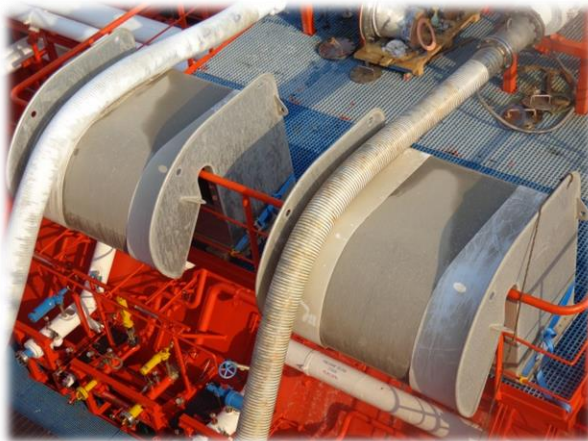
Since 2011 delivery of Multi-LNG White STS 8" & 10" hoses

Length : Several

Quantity : Several

Vessel (FSRU): Several

LNG STS



Since 2014 delivery of Multi-LNG White 3" hoses

Length : 12,00 meter
Quantity : 2 hoses
Application : LNG Barge to Ship transfer
Operation : Frequently



Since 2013 delivery of Multi-LNG White 6" hoses

Length : 12,00 meter
Quantity : 2 hoses
Customer : Bunkering first LNG Ferry in the World Viking Grace in Stockholm
Application : Bunker ship to Ferry
Operation : Daily (30 minutes)

VIKING *Grace*



Since 2011 delivery of Multi-LNG White 8" hoses

Length : 13,00 meter
Quantity : 2 hoses
Set up: : 1 liquid line
Application : Ship to shore unloading
Operations : Weekly



Since 2010 delivery of Multi-LNG White 1,5" hoses

Argonon, First LNG bunker ship in Europe, owned by Deen Shipping
Greenstream, chartered by Shell and carries out LNG bunkering
operations in Port of Rotterdam up to Basel in Switzerland



Since 2016 delivery of Multi-LNG White hoses 2" / 4" / 6" and smaller sizes

Length : Several
Quantity : Several
Application : Truck to Bunker unit, Bunker unit to Ship
Operations : weekly



Since 2012 delivery of Multi-LNG White hoses 1,5" & 2

Length : Several

Quantity : Several

Application : Truck to ship

Operations : All around Europe, frequently

