MAN Oil & Marine S.r.l.

Sales support:
PT Berkah Kurnia Langgeng
Email : marketing@bklanggeng.com

MAN Oil & Marine OFFER

MAN Oil & Marine OFFER

MAN Oil & Marine is active in the design, production and assistance for the installation of oil and long length hoses for offshore and onshore applications, for the carrying of oil, chemical and gas products:

- **Single Carcass Floating and sub sea hoses**
  Available in STEEL or TEXTILE CORD Reinforcements
  POSEIDON line (Steel Cord reinforcements)
  NAUTILUS line (Textile Cord reinforcements)

- **Double Carcass Floating and sub sea hoses**
  Available in STEEL or TEXTILE CORD Reinforcements
  POSEIDON line (Steel Cord reinforcements)
  NAUTILUS line (Textile Cord reinforcements)

- **“ Free Flex “ Helix Free Floating and sub sea hoses**

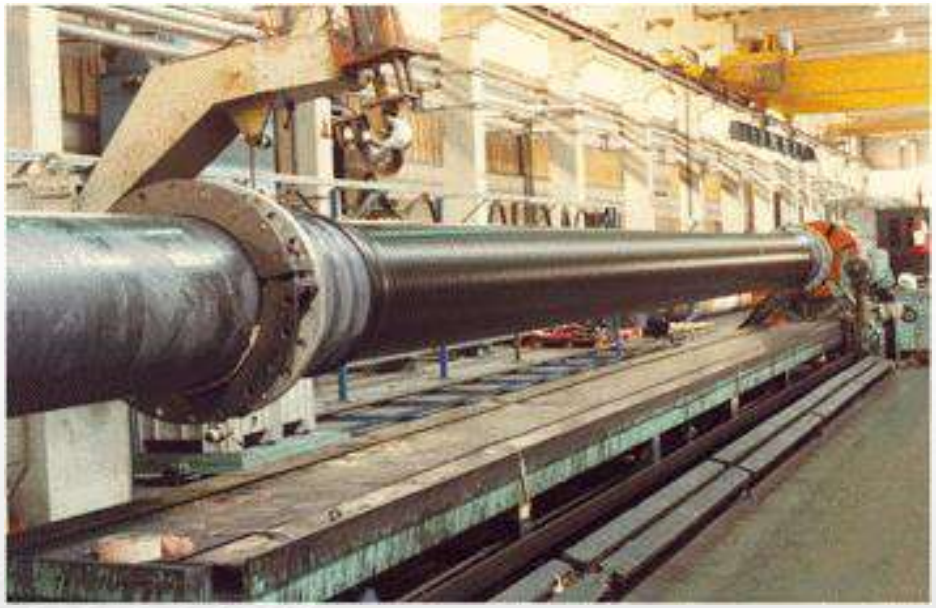
- **Long-length (up to 300m) elastomeric conduit**

- **Dock hoses**

- **LPG hoses**

- **Design and project management of marine systems**

Custom built hoses



All MAN Oil & Marine hoses are manufactured and tested according to GMPHOM 2009, O.C.I.M.F. ’91 & BS EN rules and meet special requirements of other specifications from the major Petroleum Company.

Each hose is built following specific technical instructions and under a strict control by Quality Control DPT.

On request hoses for special application can be manufactured.

Single carcass hoses

SINGLE CARCASS

H3006 UF	*One end reinforced submarine hose*
H3007 UF	*Both end reinforced submarine hose*
H3030 UF	*Mainline submarine hose*
H3030 TUF	*Tail submarine hose*
H3232 UF	*Reducer submarine hose*
H3737 UF	*Fully reinforced submarine hose*
H3838 UF	*Tanker rail submarine hose*
H3006 FM	*One end reinforced submarine hose with locations collars*
H3007 FM	*Both end reinforced submarine hose with locations collars*
H3030 FM	*Mainline submarine hose with locations collars*
H3737 FM	*Fully reinforced submarine hose with locations collars*
H3006 FF	*One end reinforced full floating hose*
H3006 HF	*One end reinforced half floating hose (first of buoy)*
H3007 FF	*Both end reinforced full floating hose*
H3030 FF	*Mainline full floating hose*
H3030 TFF	*Tail full floating hose*
H3232 FF	*Reducer full floating hose*
H3737 FF	*Fully reinforced full floating hose*
H3838 DF	*Tanker rail dumbel floating hose*

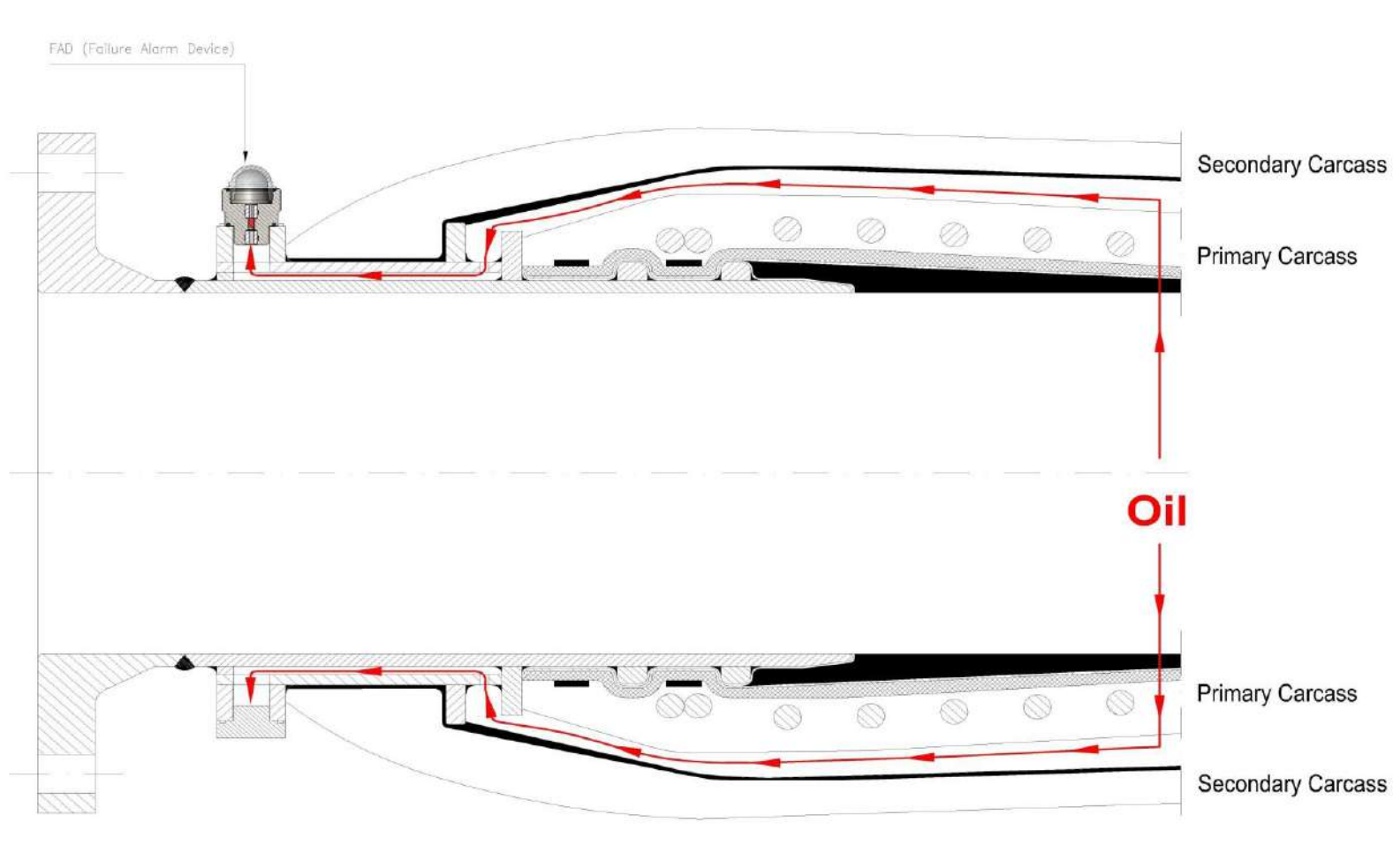
Double carcass hoses

DOUBLE CARCASS

H3006 UF	**DASH**	*Double carcass One end reinforced submarine hose*
H3007 UF	**DASH**	*Double carcass Both end reinforced submarine hose*
H3030 UF	**DASH**	*Double carcass Mainline submarine hose*
H3030 TUF	**DASH**	*Double carcass Tail submarine hose*
H3232 UF	**DASH**	*Double carcass Reducer submarine hose*
H3737 UF	**DASH**	*Double carcass Fully reinforced submarine hose*
H3838 UF	**DASH**	*Double carcass Tanker rail submarine hose*
H3006 FM	**DASH**	*Double carcass One end reinforced submarine hose with locations collars*
H3007 FM	**DASH**	*Double carcass Both end reinforced submarine hose with locations collars*
H3030 FM	**DASH**	*Double carcass Mainline submarine hose with locations collars*
H3737 FM	**DASH**	*Double carcass Fully reinforced submarine hose with locations collars*
H3006 FF	**DASH**	*Double carcass One end reinforced full floating hose*
H3006 HF	**DASH**	*Double carcass One end reinforced half floating hose (first of buoy)*
H3007 FF	**DASH**	*Double carcass Both end reinforced full floating hose*
H3030 FF	**DASH**	*Double carcass Mainline full floating hose*
H3030 TFF	**DASH**	*Double carcass Tail full floating hose*
H3232 FF	**DASH**	*Double carcass Reducer full floating hose*
H3737 FF	**DASH**	*Double carcass Fully reinforced full floating hose*
H3838 DF	**DASH**	*Double carcass Tanker rail dumbel floating hose*

Double carcass hoses

Not all hoses in the market which are claimed to have a 'double protection' against pollution can be marked OCIMF **'Double Carcass Hose'**...



Single & Double carcass Freeflex hoses

FREEFLEX

H5006 UF	*Helix free One end reinforced submarine hose*
H5007 UF	*Helix free Both end reinforced submarine hose*
H5050 UF	*Helix free Mainline submarine hose*
H5050 TUF	*Helix free Tail submarine hose*
H5252 UF	*Helix free Reducer submarine hose*
H5757 UF	*Helix free Fully reinforced submarine hose*
H5858 UF	*Helix free Tanker rail submarine hose*
H5006 FM	*Helix free One end reinforced submarine hose with locations collars*
H5007 FM	*Helix free Both end reinforced submarine hose with locations collars*
H5050 FM	*Helix free Mainline submarine hose with locations collars*
H5757 FM	*Helix free Fully reinforced submarine hose with locations collars*
H5006 FF	*Helix free One end reinforced full floating hose*
H5006 HF	*Helix free One end reinforced half floating hose (first of buoy)*
H5007 FF	*Helix free Both end reinforced full floating hose*
H5050 FF	*Helix free Mainline full floating hose*
H5050 TFF	*Helix free Tail full floating hose*
H5252 FF	*Helix free Reducer full floating hose*
H5757 FF	*Helix free Fully reinforced full floating hose*
H5858 DF	*Helix free Tanker rail dumbel floating hose*

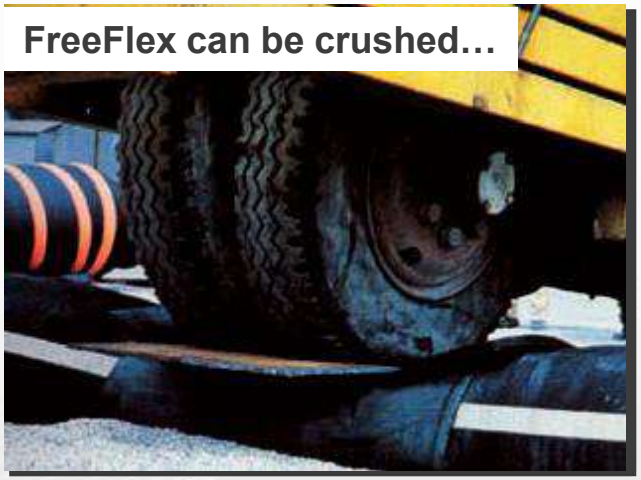
DOUBLE CARCASS FREEFLEX

H5006 UF	**DASH**	*Double carcass Helix free One end reinforced submarine hose*
H5007 UF	**DASH**	*Double carcass Helix free Both end reinforced submarine hose*
H5050 UF	**DASH**	*Double carcass Helix free Mainline submarine hose*
H5050 TUF	**DASH**	*Double carcass Helix free Tail submarine hose*
H5252 UF	**DASH**	*Double carcass Helix free Reducer submarine hose*
H5757 UF	**DASH**	*Double carcass Helix free Fully reinforced submarine hose*
H5858 UF	**DASH**	*Double carcass Helix free Tanker rail submarine hose*
H5006 FM	**DASH**	*Double carcass Helix free One end reinforced submarine hose with locations collars*
H5007 FM	**DASH**	*Double carcass Helix free Both end reinforced submarine hose with locations collars*
H5050 FM	**DASH**	*Double carcass Helix free Mainline submarine hose with locations collars*
H5757 FM	**DASH**	*Double carcass Helix free Fully reinforced submarine hose with locations collars*
H5006 FF	**DASH**	*Double carcass Helix free One end reinforced full floating hose*
H5006 HF	**DASH**	*Double carcass Helix free One end reinforced half floating hose (first of buoy)*
H5007 FF	**DASH**	*Double carcass Helix free Both end reinforced full floating hose*
H5050 FF	**DASH**	*Double carcass Helix free Mainline full floating hose*
H5050 TFF	**DASH**	*Double carcass Helix free Tail full floating hose*
H5252 FF	**DASH**	*Double carcass Helix free Reducer full floating hose*
H5757 FF	**DASH**	*Double carcass Helix free Fully reinforced full floating hose*
H5858 DF	**DASH**	*Double carcass Helix free Tanker rail dumbel floating hose*

Single & Double carcass Freeflex hoses

Steel cord - STRONG…BUT STILL FLEXIBLE

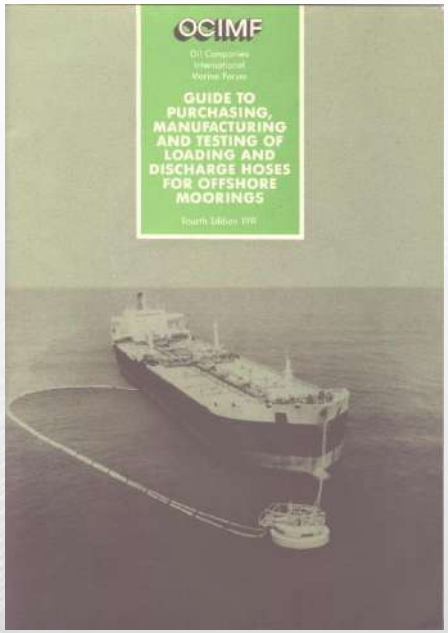
FreeFlex can be crushed…



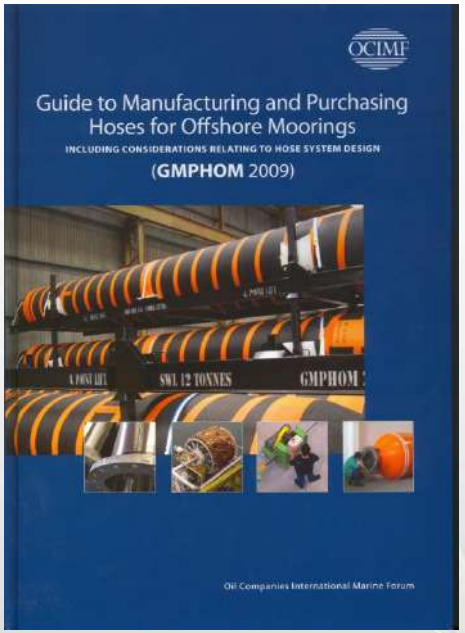
…and can be kinked…

…but when the loads are removed, FreeFlex recovers its original shape with no damage or permanent deformation

GMPHOM Prototypes



OCIMF



Guide to Manufacturing and Purchasing Hoses for Offshore Moorings, Fifth Edition 2009.

Issued by: Oil Companies International Marine Forum (OCIMF)

Fully effective starting from: June 2012.

GMPHOM Prototypes

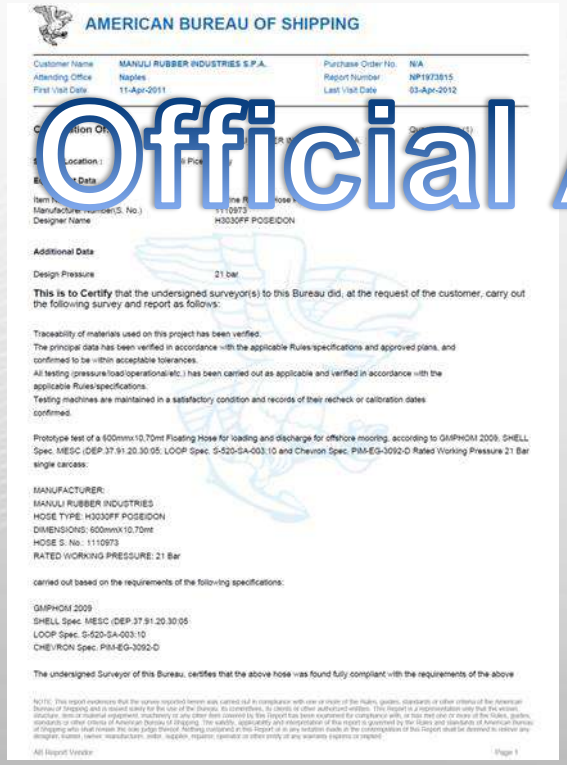
GMPHOM 2009 - New or significantly changed topics

- New requirements for material tests introduced
- New prototype tests introduced: materials, torsion, tensile loading, crushing, lifting lugs and dynamic testing
- Reeling Hose Systems addressed for the first time
- Offshore Hoses for the transfer of LPG addressed
- Revised stiffness test
- Increased Safe Working Loads for hose lifting lugs
- The design for Double Carcass Hoses has been clarified
- Increased Hose collapse resistance requirement

GMPHOM Prototypes

Single Carcass Poseidon (Steel Cord Reinforced) Hose conforming to GMPHOM 2009

Single Carcass 600 mm ABS Prototype Approval



AMERICAN BUREAU OF SHIPPING

Customer Name	MANULI RUBBER INDUSTRIES S.P.A.	Purchase Order No.	N/A
Attending Office	Naples	Report Number	NP1973815
First Visit Date	11-Apr-2011	Last Visit Date	03-Apr-2012

Manufacturer Number(S. No.) 1110973
Designer Name H3030FF POSEIDON

Additional Data

Design Pressure 21 bar

This is to Certify that the undersigned surveyor(s) to this Bureau did, at the request of the customer, carry out the following survey and report as follows:

Traceability of materials used on this project has been verified.
The principal data has been verified in accordance with the applicable Rules/specifications and approved plans, and confirmed to be within acceptable tolerances.
All testing (pressure/load/operational/etc.) has been carried out as applicable and verified in accordance with the applicable Rules/specifications.
Testing machines are maintained in a satisfactory condition and records of their recheck or calibration dates confirmed.

Prototype test of a 600mmx10.70mt Floating Hose for loading and discharge for offshore mooring, according to GMPHOM 2009, SHELL Spec. MESC (DEP.37.91.20.30.05, LOOP Spec. S-520-SA-003:10 and Chevron Spec. PIM-EG-3092-D Rated Working Pressure 21 Bar single carcass:

MANUFACTURER:
MANULI RUBBER INDUSTRIES
HOSE TYPE: H3030FF POSEIDON
DIMENSIONS: 600mmX10,70mt
HOSE S. No.: 1110973
RATED WORKING PRESSURE: 21 Bar

carried out based on the requirements of the following specifications:

GMPHOM 2009
SHELL Spec. MESC (DEP.37.91.20.30.05
LOOP Spec. S-520-SA-003:10
CHEVRON Spec. PIM-EG-3092-D

The undersigned Surveyor of this Bureau, certifies that the above hose was found fully compliant with the requirements of the above

NOTE: This report evidences that the survey reported herein was carried out in compliance with one or more of the Rules, guides, standards or other criteria of the American Bureau of Shipping and is issued solely for the use of the Bureau, its committees, its clients or other authorized entities. This Report is a representation only that the vessel, structure, item or material equipment, machinery or any other item covered by this Report has been examined for compliance with, or has met one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping. The validity, applicability and interpretation of this report is governed by the Rules and standards of American Bureau of Shipping who shall remain the sole judge thereof. Nothing contained in this Report or in any notation made in the consideration of this Report shall be deemed to relieve any designer, builder, owner, manufacturer, seller, supplier, repairer, operator or other entity or any warranty express or implied.

All Report Vendor Page 1

Single Carcass 300 mm ABS Prototype Approval

AMERICAN BUREAU OF SHIPPING

Customer Name	MANULI RUBBER INDUSTRIES S.P.A.	Purchase Order No.	N/A
Attending Office	Naples	Report Number	NP2185407
First Visit Date	25-Aug-2012	Last Visit Date	25-Nov-2012

Manufacturer Number 0912028
Designer Name H3030JF POSEIDON

Additional Data

Design Pressure 21 bar

This is to Certify that the undersigned surveyor(s) to this Bureau did, at the request of the customer, carry out the following survey and report as follows:

Traceability of materials used on this project has been verified.
The principal data has been verified in accordance with the applicable Rules/specifications and approved plans, and confirmed to be within acceptable tolerances.
All testing (pressure/load/operational/etc.) has been carried out as applicable and verified in accordance with the applicable Rules/specifications.
Testing machines are maintained in a satisfactory condition and records of their recheck or calibration dates confirmed.

Prototype test of a 300mmx10.70mt Submarine Hose for loading and discharge for offshore mooring, according to GMPHOM 2009, SHELL Spec. MESC (DEP.37.91.20.30.05 and Chevron Spec. PIM-EG-3092-D Rated Working Pressure 21 Bar single carcass:

MANUFACTURER:
MANULI RUBBER INDUSTRIES
HOSE TYPE: H3030JF POSEIDON
DIMENSIONS: 300mmX10,70mt
HOSE S. No.: 0912028
RATED WORKING PRESSURE: 21 Bar

carried out based on the requirements of the following specifications:

GMPHOM 2009
SHELL Spec. MESC (DEP.37.91.20.30.05
CHEVRON Spec. PIM-EG-3092-D

The undersigned Surveyor of this Bureau, certifies that the above hose was found fully compliant with the requirements of the above referenced specifications, for a Rated Working Pressure of 21 Bar. The hose was subjected to the following tests with satisfactory results:

NOTE: This report evidences that the survey reported herein was carried out in compliance with one or more of the Rules, guides, standards or other criteria of the American Bureau of Shipping and is issued solely for the use of the Bureau, its committees, its clients or other authorized entities. This Report is a representation only that the vessel, structure, item or material equipment, machinery or any other item covered by this Report has been examined for compliance with, or has met one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping. The validity, applicability and interpretation of this report is governed by the Rules and standards of American Bureau of Shipping who shall remain the sole judge thereof. Nothing contained in this Report or in any notation made in the consideration of this Report shall be deemed to relieve any designer, builder, owner, manufacturer, seller, supplier, repairer, operator or other entity or any warranty express or implied.

All Report Vendor Page 1

GMPHOM Prototypes

Double Carcass Poseidon (Steel Cord Reinforced) Hose conforming to GMPHOM 2009

Double Carcass 600 mm ABS Prototype Approval

AMERICAN BUREAU OF SHIPPING

Equipment Data

Item Name: Marine Rubber Hose Prototype
Manufacturer Number(S. No.): 0713097
Designer Name: H3030 FF DASH POSEIDON

Additional Data

Design Pressure: 21 bar

This is to Certify that the undersigned surveyor(s) to this Bureau did, at the request of the customer, carry out the following survey and report as follows:

Traceability of materials used on this project has been verified.
The principal data has been verified in accordance with the applicable Rules/specifications and approved plans, and confirmed to be within acceptable tolerances.
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Testing machines are maintained in a satisfactory condition and records of their recheck or calibration dates confirmed.

Prototype test of a 600mmx10,70Mt Floating Hose for Loading and Discharge for Offshore Mooring, according to Guide to Manufacturing and Purchasing Hoses for Offshore Moorings (GMPHOM 2009) Rated Working Pressure 21 Bar double carcass.

MANUFACTURER:
MANULI RUBBER INDUSTRIES
HOSE TYPE: H3030 FF DASH POSEIDON
DIMENSIONS: 600mmX10,70mt
HOSE S. No.: 0713097
RATED WORKING PRESSURE: 21 Bar

carried out based on the requirements of the following specification:

GMPHOM 2009

The undersigned Surveyor of this Bureau, certifies that the above hose was found fully compliant with the requirement of the above referenced specifications, for a Rated Working Pressure of 21 Bar. The hose was subjected to the following tests with satisfactory results:

1. Material Tests - Liner Test
2. Material Tests - Cover Test

Double Carcass 300 mm ABS Prototype Approval

AMERICAN BUREAU OF SHIPPING

Customer Name: MANULI RUBBER INDUSTRIES S.P.A.
Purchase Order No.: N/A

Item Name: Marine Rubber Hose Prototype
Manufacturer Number(S. No.): 1012135
Designer Name: H3030 DASH POSEIDON

Additional Data

Design Pressure: 21 bar

This is to Certify that the undersigned surveyor(s) to this Bureau did, at the request of the customer, carry out the following survey and report as follows:

Traceability of materials used on this project has been verified.
The principal data has been verified in accordance with the applicable Rules/specifications and approved plans, and confirmed to be within acceptable tolerances.
All testing (pressure/load/operational/etc.) has been carried out as applicable and verified in accordance with the applicable Rules/specifications.
Testing machines are maintained in a satisfactory condition and records of their recheck or calibration dates confirmed.

Prototype test of a 300mmx10,70mt Hose for loading and discharge for offshore mooring, according to GMPHOM 2009, SHELL Spec. MESC DEP.37.91.20.30-05 and Chevron Spec. PM-EG-3002-D Rated Working Pressure 21 Bar double carcass.

MANUFACTURER:
MANULI RUBBER INDUSTRIES
HOSE TYPE: H3030 DASH POSEIDON
DIMENSIONS: 300mmX10,70mt
HOSE S. No.: 1012135
RATED WORKING PRESSURE: 21 Bar

carried out based on the requirements of the following specifications:
GMPHOM 2009
SHELL Spec. MESC (DEP.37.91.20.30)-05
CHEVRON Spec. PM-EG-3002-D

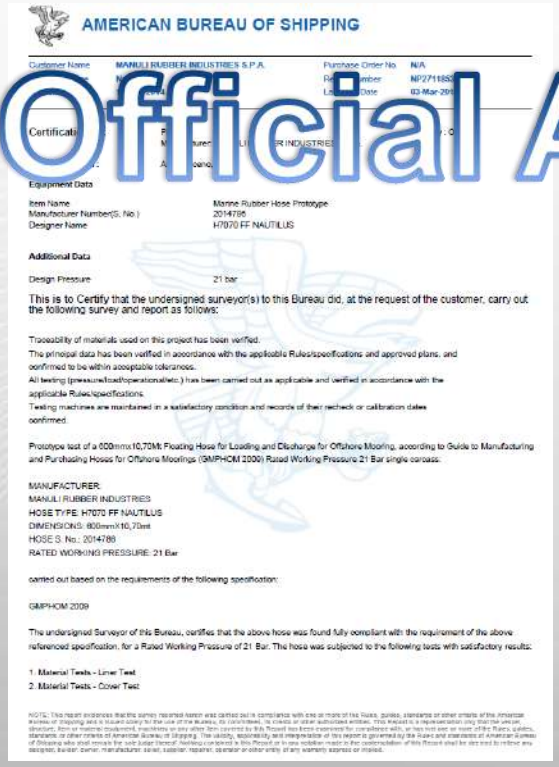
The undersigned Surveyor of this Bureau, certifies that the above hose was found fully compliant with the requirements of the above referenced specifications, for a Rated Working Pressure of 21 Bar. The hose was subjected to the following tests with satisfactory results:

1. Material Tests - Liner Test

GMPHOM Prototypes

Single Carcass Nautilus (Textile Cord Reinforced) Hose conforming to GMPHOM 2009

Single Carcass 600 mm ABS Prototype Approval



AMERICAN BUREAU OF SHIPPING

Customer Name: MANULI RUBBER INDUSTRIES S.P.A.
Purchase Order No.: N/A
Report Number: NP2711883
Last Survey Date: 03-Mar-2011

Certificate

Equipment Data

Item Name: Marine Rubber Hose Prototype
Manufacturer Number(S. No.): 2014786
Designer Name: H7070 FF NAUTILUS

Additional Data

Design Pressure: 21 bar

This is to Certify that the undersigned surveyor(s) to this Bureau did, at the request of the customer, carry out the following survey and report as follows:

Traceability of materials used on this project has been verified.
The principal data has been verified in accordance with the applicable Rules/specifications and approved plans, and confirmed to be within acceptable tolerances.
All testing (pressure/load/operational/etc.) has been carried out as applicable and verified in accordance with the applicable Rules/specifications.
Testing machines are maintained in a satisfactory condition and records of their recheck or calibration dates confirmed.

Prototype test of a 600mmx10,70Mt Floating Hose for Loading and Discharge for Offshore Mooring, according to Guide to Manufacturing and Purchasing Hoses for Offshore Moorings (GMPHOM 2009) Rated Working Pressure 21 Bar single carcass:

MANUFACTURER:
MANULI RUBBER INDUSTRIES
HOSE TYPE: H7070 FF NAUTILUS
DIMENSIONS: 600mmX10,70mt
HOSE S. No.: 2014786
RATED WORKING PRESSURE: 21 Bar

carried out based on the requirements of the following specification:

GMPHOM 2009

The undersigned Surveyor of this Bureau, certifies that the above hose was found fully compliant with the requirement of the above referenced specification, for a Rated Working Pressure of 21 Bar. The hose was subjected to the following tests with satisfactory results:

1. Material Tests - Liner Test
2. Material Tests - Cover Test

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Single Carcass 300 mm ABS Prototype Approval

AMERICAN BUREAU OF SHIPPING

Customer Name: MANULI RUBBER INDUSTRIES S.P.A.
Purchase Order No.: N/A

Survey Location: Ascoli Piceno, Italy

Equipment Data

Item Name: Marine Rubber Hose Prototype
Manufacturer Number(S. No.): 111348
Designer Name: H7070 UF NAUTILUS

Additional Data

Design Pressure: 21 bar

This is to Certify that the undersigned surveyor(s) to this Bureau did, at the request of the customer, carry out the following survey and report as follows:

Traceability of materials used on this project has been verified.
The principal data has been verified in accordance with the applicable Rules/specifications and approved plans, and confirmed to be within acceptable tolerances.
All testing (pressure/load/operational/etc.) has been carried out as applicable and verified in accordance with the applicable Rules/specifications.
Testing machines are maintained in a satisfactory condition and records of their recheck or calibration dates confirmed.

Prototype test of a 300mmx10,70Mt Submarine Hose for Loading and Discharge for Offshore Mooring, according to Guide to Manufacturing and Purchasing Hoses for Offshore Moorings (GMPHOM 2009) Rated Working Pressure 21 Bar single carcass:

MANUFACTURER:
MANULI RUBBER INDUSTRIES
HOSE TYPE: H7070 UF NAUTILUS
DIMENSIONS: 300mmX10,70mt
HOSE S. No.: 111348
RATED WORKING PRESSURE: 21 Bar

carried out based on the requirements of the following specification:

GMPHOM 2009

The undersigned Surveyor of this Bureau, certifies that the above hose was found fully compliant with the requirement of the above referenced specification, for a Rated Working Pressure of 21 Bar. The hose was subjected to the following tests with satisfactory results:

1. Material Tests - Liner Test

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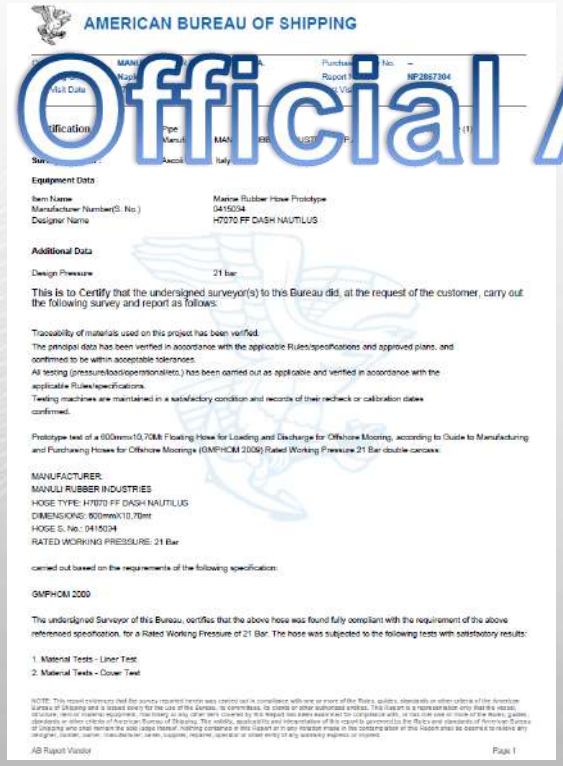
ABS Report Header

Page 1

GMPHOM Prototypes

Double Carcass Nautilus (Textile Cord Reinforced) Hose conforming to GMPHOM 2009

Double Carcass 600 mm ABS Prototype Approval



AMERICAN BUREAU OF SHIPPING

Equipment Data

Item Name: Marine Rubber Hose Prototype
Manufacturer Number(S. No.): 0415094
Designer Name: H7070 FF DASH NAUTILUS

Additional Data

Design Pressure: 21 bar

This is to Certify that the undersigned surveyor(s) to this Bureau did, at the request of the customer, carry out the following survey and report as follows:

Traceability of materials used on this project has been verified.
The principal data has been verified in accordance with the applicable Rules/specifications and approved plans, and confirmed to be within acceptable tolerances.
All testing (pressure/load/operational/etc.) has been carried out as applicable and verified in accordance with the applicable Rules/specifications.
Testing machines are maintained in a satisfactory condition and records of their recheck or calibration dates confirmed.

Prototype test of a 600mmx10,70Mt Floating Hose for Loading and Discharge for Offshore Mooring, according to Guide to Manufacturing and Purchasing Hoses for Offshore Moorings (GMPHOM 2009) Rated Working Pressure 21 Bar double carcass.

MANUFACTURER:
MANULI RUBBER INDUSTRIES
HOSE TYPE: H7070 FF DASH NAUTILUS
DIMENSIONS: 600mmX10,70mt
HOSE S. No.: 0415094
RATED WORKING PRESSURE: 21 Bar

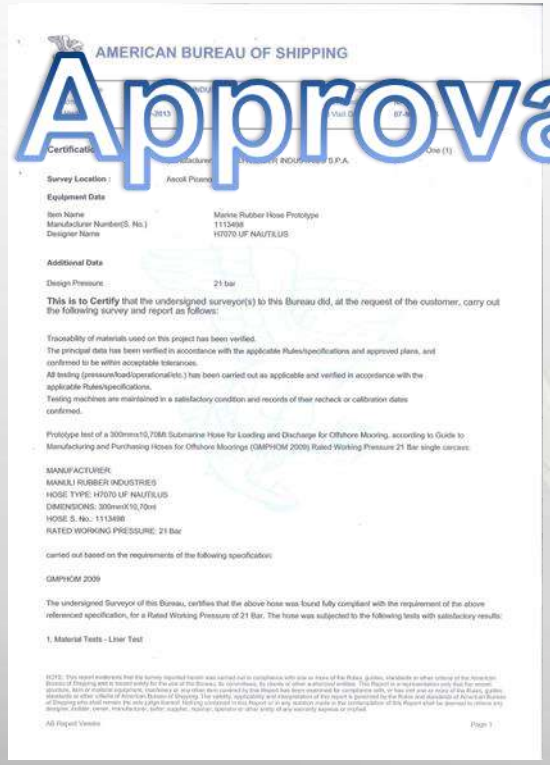
carried out based on the requirements of the following specification:

GMPHOM 2009

The undersigned Surveyor of this Bureau, certifies that the above hose was found fully compliant with the requirement of the above referenced specification, for a Rated Working Pressure of 21 Bar. The hose was subjected to the following tests with satisfactory results:

1. Material Tests - Liner Test
2. Material Tests - Cover Test

Double Carcass 300 mm ABS Prototype Approval



AMERICAN BUREAU OF SHIPPING

Survey Location : Ancoli Picenc

Equipment Data

Item Name: Marine Rubber Hose Prototype
Manufacturer Number(S. No.): 1113498
Designer Name: H7070 UF NAUTILUS

Additional Data

Design Pressure: 21 bar

This is to Certify that the undersigned surveyor(s) to this Bureau did, at the request of the customer, carry out the following survey and report as follows:

Traceability of materials used on this project has been verified.
The principal data has been verified in accordance with the applicable Rules/specifications and approved plans, and confirmed to be within acceptable tolerances.
All testing (pressure/load/operational/etc.) has been carried out as applicable and verified in accordance with the applicable Rules/specifications.
Testing machines are maintained in a satisfactory condition and records of their recheck or calibration dates confirmed.

Prototype test of a 300mmx10,70Mt Submarine Hose for Loading and Discharge for Offshore Mooring, according to Guide to Manufacturing and Purchasing Hoses for Offshore Moorings (GMPHOM 2009) Rated Working Pressure 21 Bar single carcass.

MANUFACTURER:
MANULI RUBBER INDUSTRIES
HOSE TYPE: H7070 UF NAUTILUS
DIMENSIONS: 300mmX10,70mt
HOSE S. No.: 1113498
RATED WORKING PRESSURE: 21 Bar

carried out based on the requirements of the following specification:

GMPHOM 2009

The undersigned Surveyor of this Bureau, certifies that the above hose was found fully compliant with the requirement of the above referenced specification, for a Rated Working Pressure of 21 Bar. The hose was subjected to the following tests with satisfactory results:

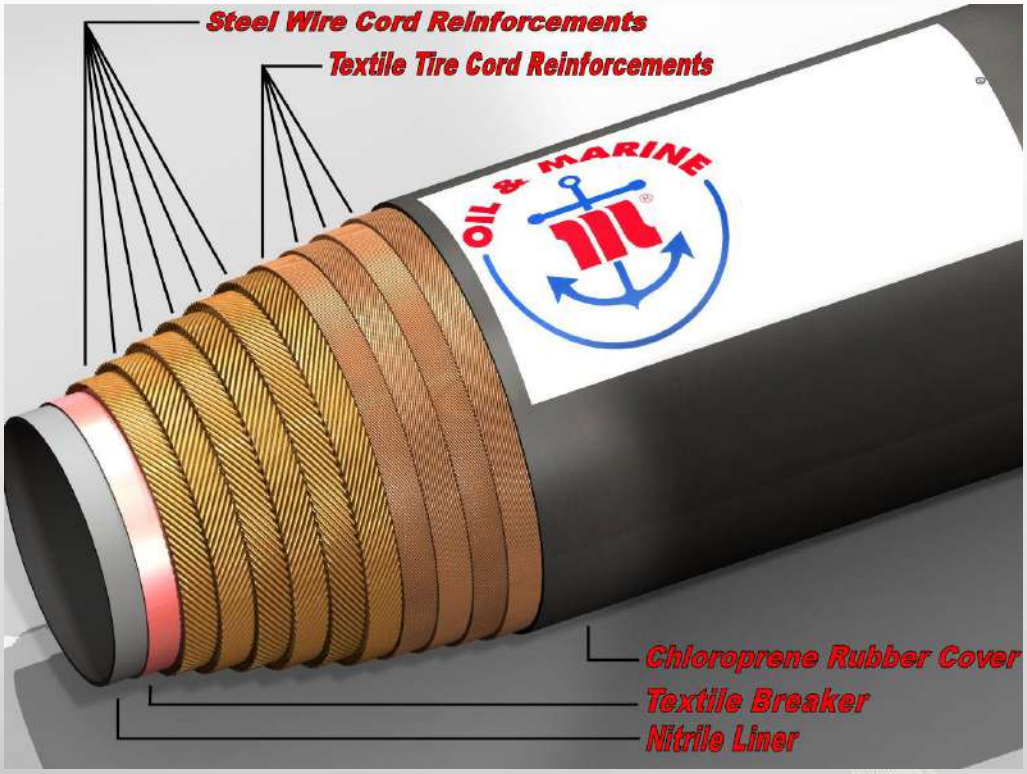
1. Material Tests - Liner Test

Long length hoses

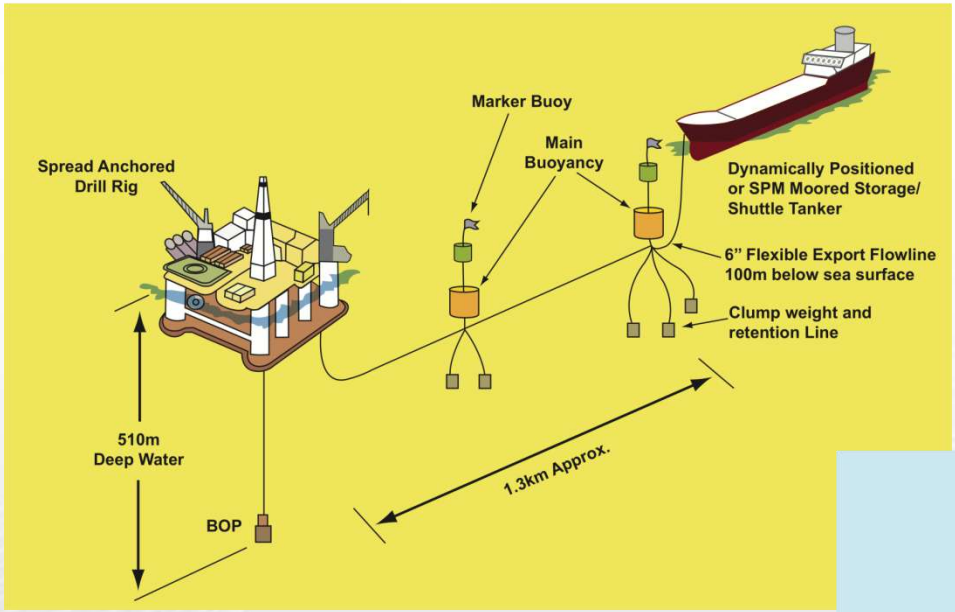
Man Oil & Marine Long Length Hoses are suited for applications with maximum allowed operating Pressure up to 175 Bar. Can be used in areas with potential for spanning and high current with correct design and stability measures

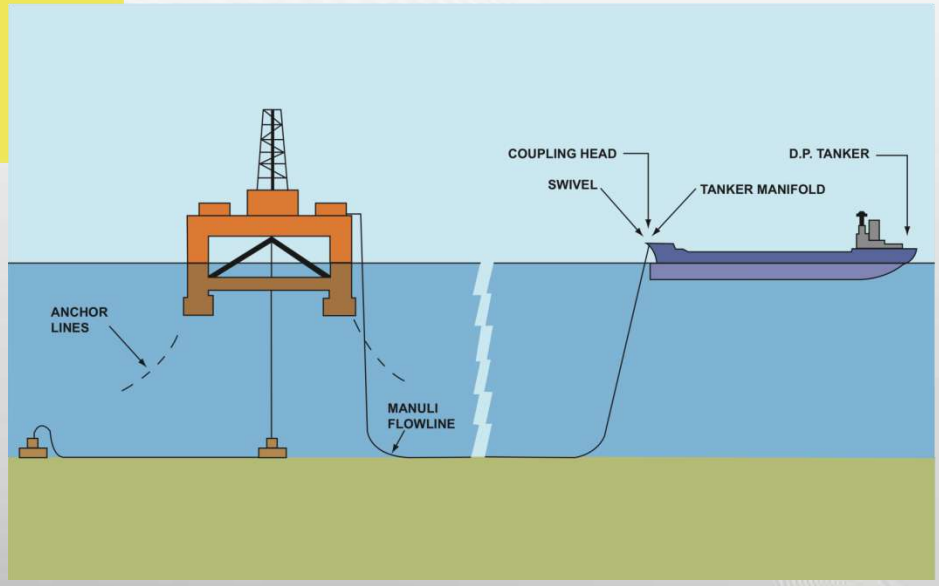
MAN Oil & Marine versus Rigid Pipe

- **Deployment cost reduced - DP1 Vessel**
- **Procurement Lead Time reduced**
- **Man Oil & Marine Hose recoverable and reusable**
- **Dynamic Applications for hose**
- **Reduced sensitivity to spanning and VIV**
- **Dynamic riser installed along with flow-line**
- **Project timescales is reduced and wider range of applications**



Long length hoses

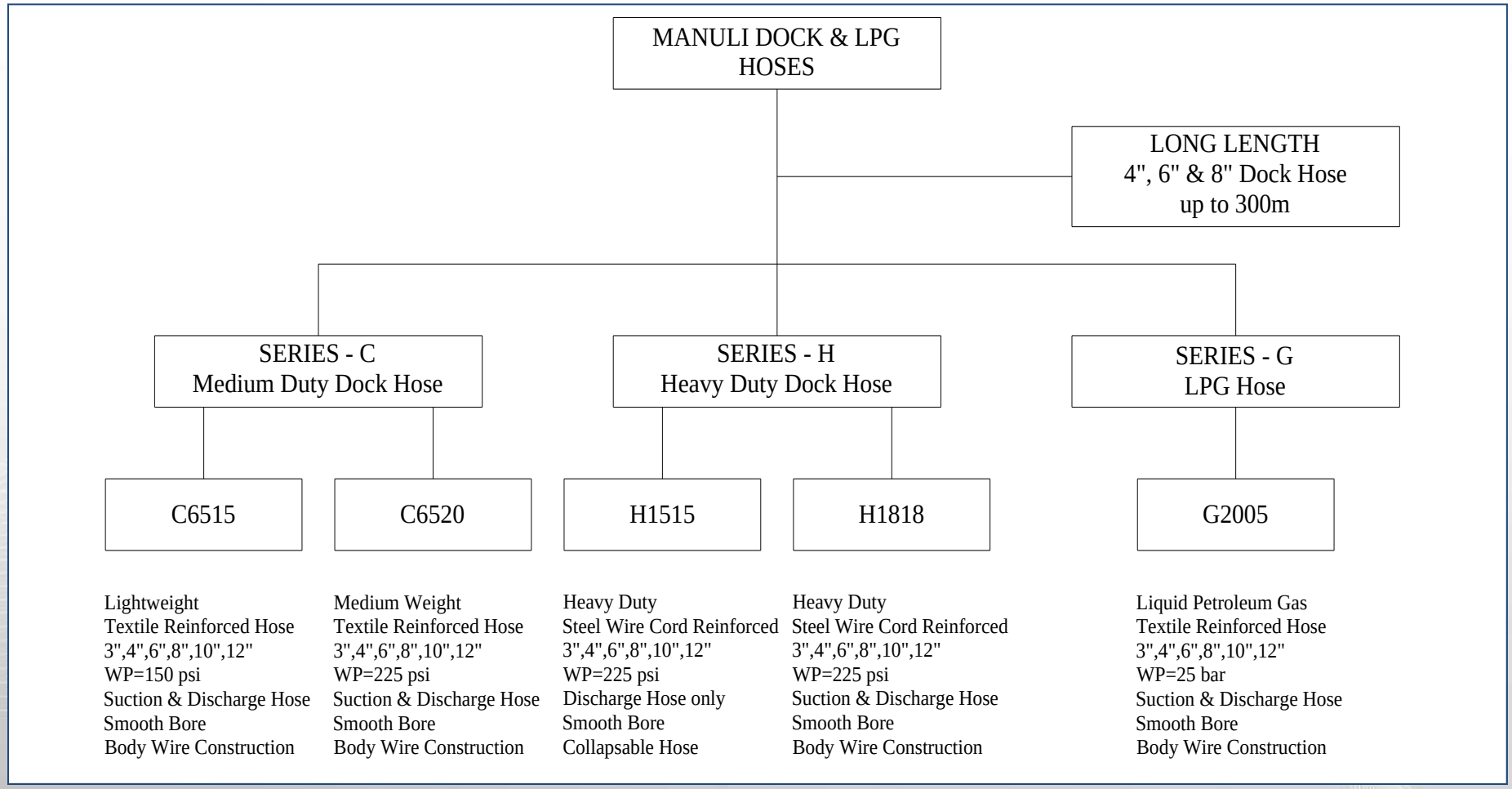




Typical applications are:

- Flowline replacement
- Dynamic Riser for LP applications
- Platform to Platform transfer lines
- Platform to FPSO transfer lines
- Marginal Field Development

Dock & LPG hoses



LPG Hose to BS EN 1762:2003

Type : G2005

The G2005 type SD is a textile reinforced 25 bar working Pressure hose for Liquefied Petroleum Gas (LPG) in suction and discharge applications.

Hose specification: BS EN 1762:2003 Type SD

Lining

NBR rubber compound, smooth bore, resistant to n-pentane and aromatic contents up to 50%.

Reinforcement

Multiple plies of Polyester Tyre cords plus stainless steel helical wire embedded in synthetic rubber.

Cover

Synthetic black chloroprene rubber compound: weather, oil, abrasion and seawater resistant.

Fittings

Built-in nipples flanged according to customer requirements.

Nominal bore

3", 4", 6", 8", 10", 12“

Temperature Range

-30° C to +70° C

Design & Project Management

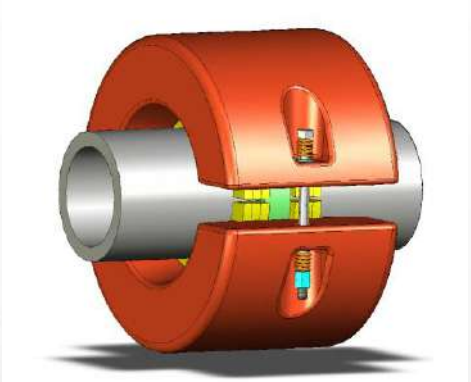
A wide range of ancillaries equipment completes MAN Oil & Marine offer.
The MAN Oil & Marine commercial, quality and technical staff is organized to provide its customers the best assistance for the solution of any kind of problem that may arise.
In particular our activity is focused on these services:

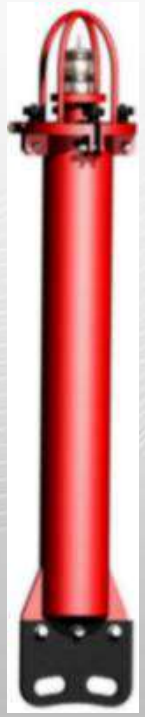
- Business relations and connections with customers
- Collaboration on the configuration of complete systems
- Management of offer requests
- Management of complete projects
- Computerized simulation of hose configuration systems
- Interface between Customer and Quality/Technical Function

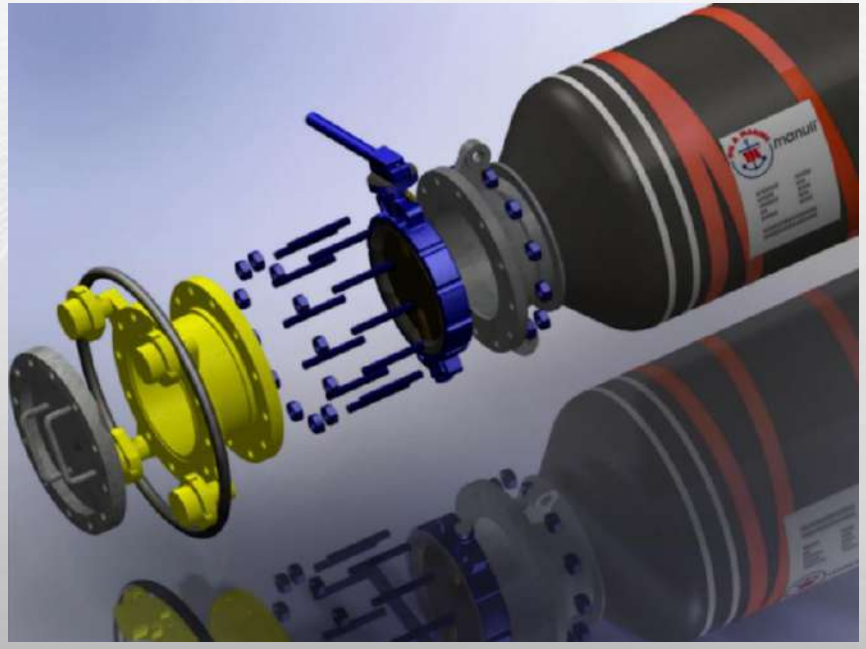
Marine Hoses Ancillaries

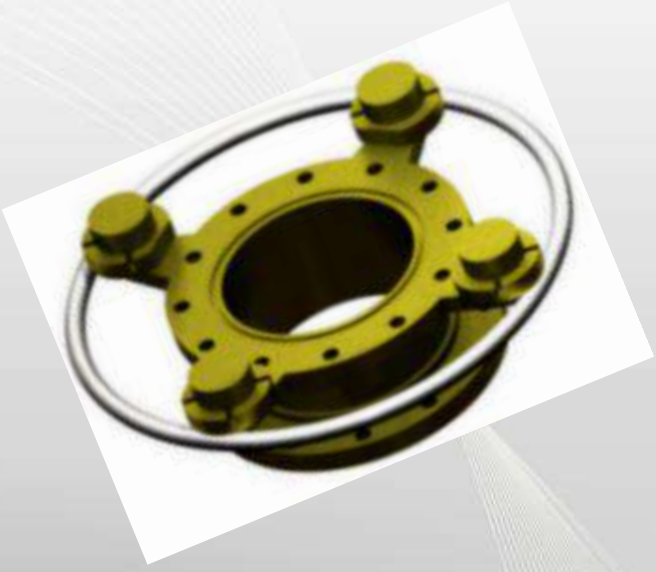
the Answer to Customer Request for System fullness…

MAN Oil & Marine collaborates with the main suppliers of offshore ancillaries, in order to design dedicated systems to each Customer application…



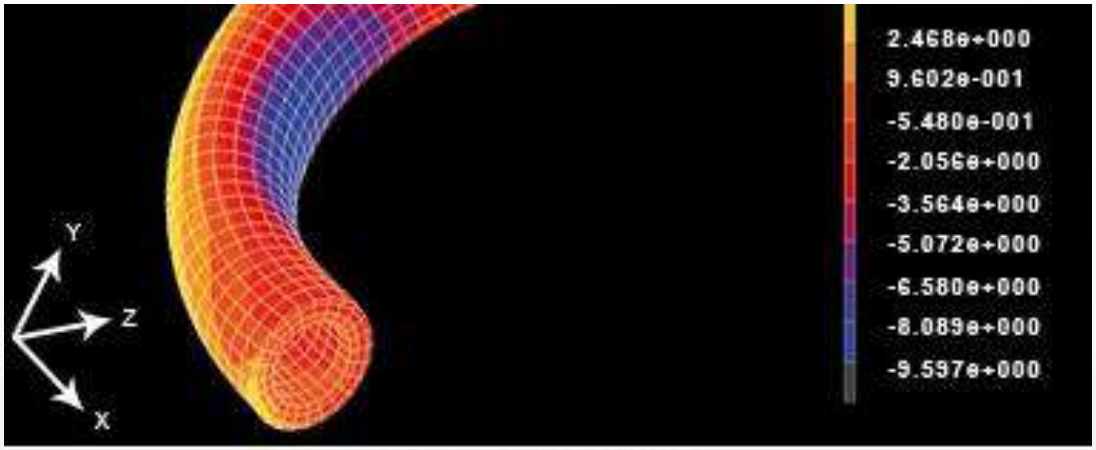


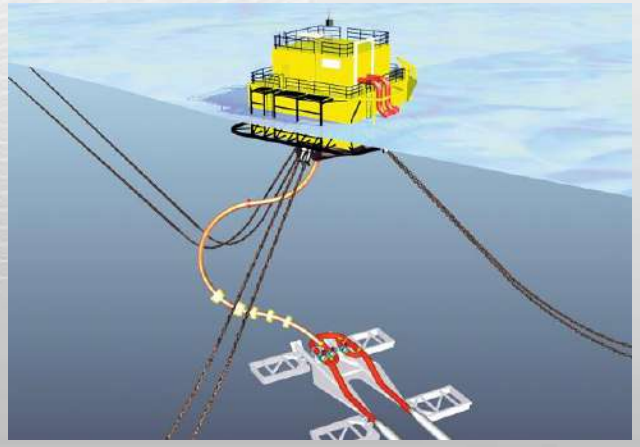


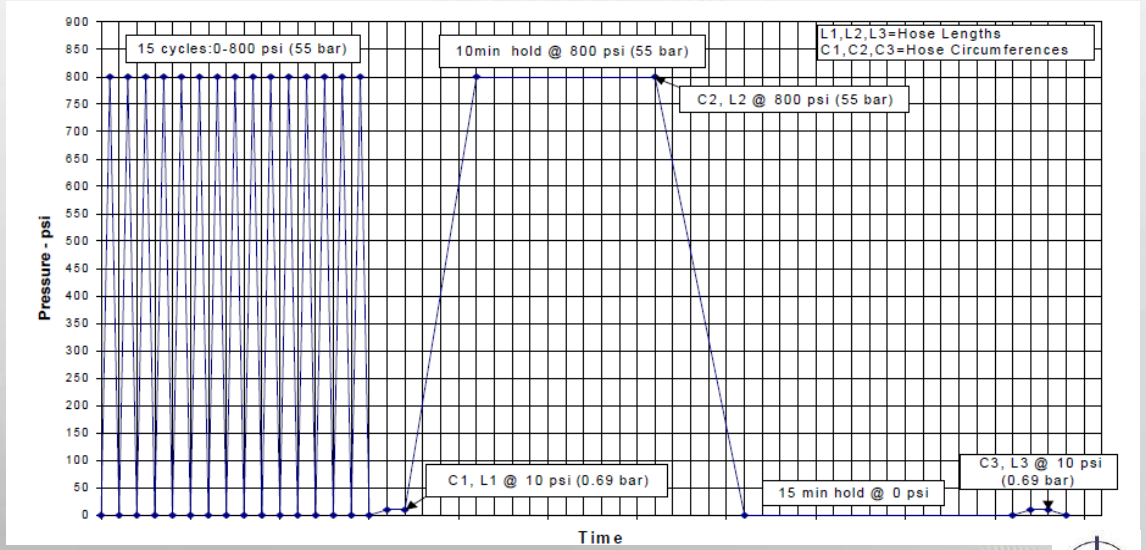


From Sea to Product Development Centre

MAN Oil & Marine use intensively the latest Computer technologies in order to analyze hose system response and configuration coming from field different Load structure. Together with the data coming from dedicated laboratories and in house testing department, the design is verified on each Project, ensuring to end user the most reliable operation







ORCAFLEX software

- Finite Element Analysis software OrcaFlex® is a marine dynamics program developed by Orcina Ltd.
- Used for flexible line system design and analysis
- OrcaFlex® is widely used in the offshore industry for analyzing submarine hoses, flexible risers, cable lay, installation of subsea equipment, oceanographic moorings, pull-in, etc.

Key points which differentiates MAN Oil & Marine

MAN Oil & Marine has dedicated Technical Service Engineers available to provide to all Customer technical service, product support and training either in the field or at our factory site.

The nature of this service can be summarized in:

- **Assistance during installation on field**
- **Management of new project**
- **Local inspection on new and used hoses**
- **Periodical inspection on submarine hoses done by divers**
- **Visual inspection on floating hoses**
- **Test on complete string or on a single hose**
- **Repair on damage hose**
- **Analysis of suitability for used hoses**

MAN Oil & Marine CERTIFICATIONS

- **Rigid quality control carried out during the manufacturing and test of our products**
- **High performance level of hoses and equipment.**
- **Thanks to this policy, O&M Division has recently received several letters of endorsement from the major offshore players**

MAN Oil & Marine CERTIFICATIONS

This is a translation of certificate N. IT20/0867

SGS

The quality management system of

MAN OIL & MARINE S.r.l.

Via Mullati del Lavoro, 18/20 - Fraz. Zona Industriale Campolungo
63100 ASCOLI PICENO - Italy

has been assessed and certified as meeting the requirements of

ISO 9001 / UNI EN ISO 9001:2015

SYSTEM CERTIFICATION ISO 9001 SGS

For the following activities

Design and manufact re of rubber compounds, conveyor hoses, hoses for the transport of oil, chemical and LPG products and "Long Le gth" hoses in onshore and offshore appication.

EA Sector: 14, 17

This certificate is valid from 02/11/2020 until 04/10/2021 and remains valid subject to satisfactory surveillance audits.
Re certification audit due before 27/09/2021.
Issue 1. Certified since 02/11/2020.

The audit leading to this certificate commenced on 30/10/2020

ACCREDIA

SGQ N° 0011 A

Authorized by
Paola Santarelli

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t +39 02 73 93 1 f +39 02 70 10 94 89 www.sgs.com

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SGS SGS SGS

Main Customers List

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PETRON

KNOC KOREA NATIONAL OIL CORPORATION

TESS HOSES - SERVICES - MRO

Cobalt International Energy

serept

econosto

Mooring Systems

enap refinerías

EMAS

Fiamma 2000 SpA

PTTEP PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED

PA RESOURCES

EP PETROECUADOR

NuStar

MURPHY OIL CORPORATION

HELIX ENERGY SOLUTIONS GROUP

SAFER

EAPC

इंडियनऑयल IndianOil

bp

شركة نفط الجنوب S.O.C

Main Customers List