

GENERAL INFORMATION

DESCRIPTION :

1st CARCASS : *Flexible rubber structure composed of smooth oil resistant extruded NBR main lining, adequate number of wire cords and steel wire helix, textile reinforcements & cover bonded together. For suction and discharge of crude oil and liquid petroleum products for Offshore Mooring.*

2nd CARCASS : *Additional carcass with oil retention channel, smooth oil and fuel resistant NBR lining, adequate number of textile reinforcements & abrasion resistant chloroprene rubber cover bonded together and vulcanized in a uniform manner. The 2nd carcass is designed to contain any product which may escape from the 1st carcass*

Floatation medium: *Closed cell expanded Polyethylene foam*

FITTING : *Built-in during hose construction*

ELECTRICALLY : *Continuous*

FAD : *Failure Alert Device "Mechanical System"*

MATERIAL :

LINING : *Smooth, oil resistant extruded (NBR)*

COVER : *Black rubber, high resistant to abrasion, oil, sunlight and seawater with longitudinal orange spiral.*

WIRE HELIX : *One helical wire embedded in syntetic rubber*

REINFORCED CORD : *Wire cord skimmed with rubber*

REFERENCE :

NORM : *Manufactured and tested according to GMPHOM 2009*

PROTOTYPE : *ABS report No: NP2087595 dated 22-May-2012*

MARKING :

MARKING "A" ON EACH END AT 180 ° :

MANUFACTURER: ANCHOR + "Manuli"

SPECIFICATION: GMPHOM 2009

DIAMETER: ID **600** mm

WORKING PRESSURE: RWP **19** bar

SERIAL NUMBER: mm yy _ _ _ _

MONTH / YEAR: _ _ _ _ _

CARCASS TYPE: DOUBLE CARCASS HOSE

HOSE TYPE: **H3006 HF DASH**

HOSE NAME: **POSEIDON**

TEMPORANEY ELONGATION : T.E. _ _ _ _ _ %

ELECTRICALLY: ELECTRICALLY CONTINUOUS

MARKING "B" ON EACH END AT 180 ° :

Serial number "mm-YY-Progressive nr. "welded on the rim of the flange

MARKING "C" ON EACH END AT 180 ° :

On the hose center : MANULI logo

FITTINGS DATA

NIPPLES :

- 1)The nipple body to be fabricated from:
- Alternative A: seamless steel pipe conforming to ASTM A-106 A or B or API-5L Grade A or B.
- Alternative B: steel plate conforming to ASTM A-285 C or equivalent.
- In both cases killed or semi-killed steel, with a maximum carbon content of 0.23 per cent.
- 2) All weld procedures and welders are to be qualified in accordance with ASME IX.
- 3) All welds, excluding band material welds, to be 100 per cent radiographed in accordance with EN 1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators. Interpretation of seam welds to be according to ASME VIII UW 51B
- 4) Band material to be equivalent to ASTM A-285 C, killed or semi-killed steel, with a maximum carbon content of 0.23 per cent. Band welds to be wet Magnetic Particle Inspected in accordance with ASME VIII, Appendix 6.
- 5) Nipple reference number to be stamped in zone 'X' at two places at 180°.

FLANGES :

- 6) The flange material to be in accordance with ASTM A-105 or equivalent normalised and with a maximum carbon content of 0.25 per cent. The flange rating to be in accordance with ASME B16.5.
- The class to be specified by the purchaser.
- 7) The flange face to have a finish equivalent to that specified in EN 1759-1 over its complete area after galvanisation.
- 8) The flanges to be identifiable by a mill number stamped on the flange edge.

RATING :

"A" END : ASME 300 FF

"B" END : ASME 150 FF

FITTINGS :

- 9) The circumferential welds between nipple and flange to be 100 per cent radiographed. All weld procedures and welders to be qualified in accordance with ASME IX. The quality and definition of radiographs to be in accordance with EN1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators.
- 10)Interpretation of butt welds to be according to API 1104.
- 11)Fitting manufacturer serial number to be stamped on the back of the flange, zone 'Y' at two places at 180°.

COATING :

- 12)The exposed internal and external surfaces of the end fittings and flanges (including flange faces) to be protected by hot dip galvanisation in accordance with EN ISO 1461.
- Surface Preparation: Grit blasting to SA 2½, followed by pickling in acid. Coating: Minimum average coating weight 610 g/m² (equivalent to 85 µm thickness).
- Zinc Composition: Bath impurities to comply with the limits specified in EN ISO 1461. Appearance: Coating shall be visually free from nodules, blisters, roughness, sharp points and uncoated areas.

HOSE PERFORMANCE DATA

RATED WORKING PRESSURE	19 bar	MAXIMUM PERMANENT ELONGATION	0,70%
TEST PRESSURE	28,5 bar	MAXIMUM AROMATICS CONTENT	UP TO 60%
MINIMUM BURST PRESSURE - 1st CARCASS	95 bar	MAXIMUM FLOW VELOCITY	UP TO 21 m/s
MINIMUM BURST PRESSURE - 2nd CARCASS	38 bar	FLUID TEMPERATURE RANGE	-20 °c +82 °c
MINIMUM BENDING RADIUS	1,8 m	AMBIENT TEMPERATURE RANGE	-29 °c +52 °c
MAXIMUM TEMPORARY ELONGATION	2,50%	MINIMUM RESERVE BUOYANCY	20%

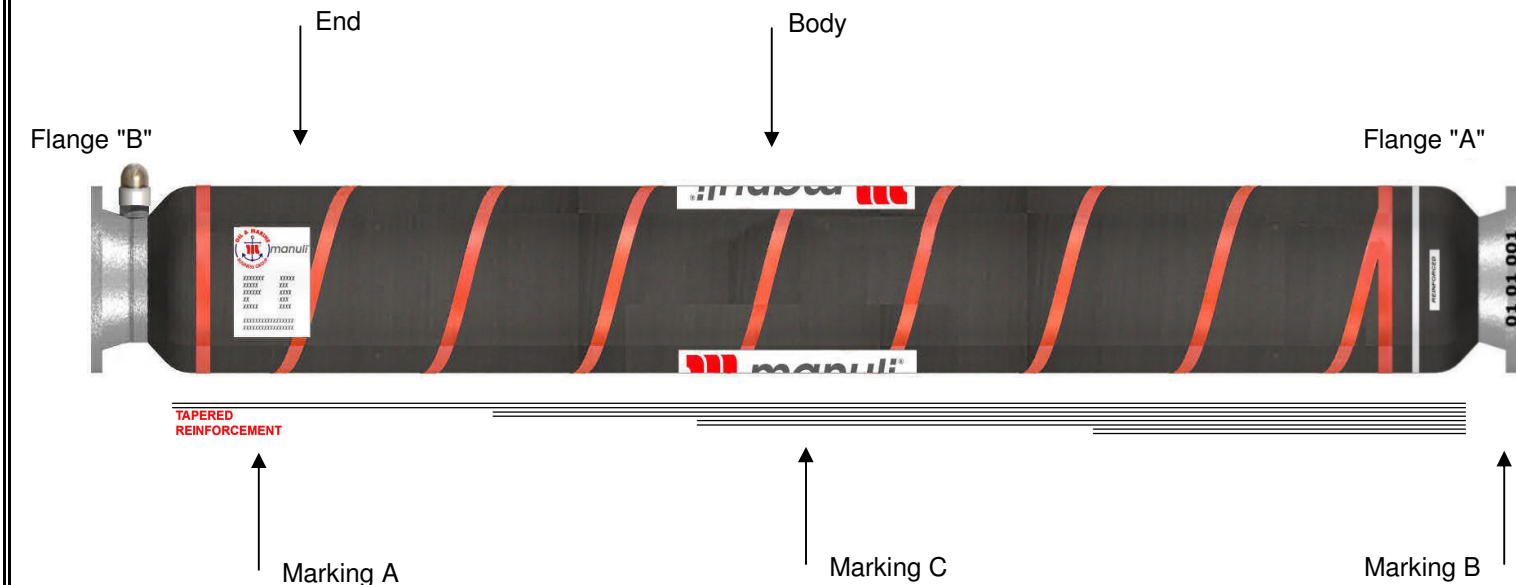
ALL DATA ARE NOMINALLY CORRECT AND MAY VERY WITHOUT NOTICE

WEIGHT :		OUT DIAMETER :		
600mm (24") x 9,1m (30') = 5115 Kg		Float.End=1294mm Float.Body=1193mm Body=856mm Reinf.End=957mm		
A	03/10/2012	MODIFIED FROM OCIMF'91 TO GMPHOM2009	L.Fortuna	A.Siliquini
0	03/08/2011	FIRST ISSUE	L.Fortuna	A.Siliquini
REV	DATE	REVISION	PREPARED	REVIEWED
SCALE	PROPERTY INFORMATION : THIS DOCUMENT AND DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR DISCLOSED WHOLE OR IN PART TO ANYONE WITHOUT PERMISSION OF MANULI RUBBER INDUSTRIES spa			
NOT TO SCALE				
A3				

H3006 HF DASH 600mm (24") RWP 19bar
Double Carcass One end Reinforced Half
Floating Hose to GMPHOM 2009 spec
for Caspian Pipeline Consortium



TD. 01.0011/54



GENERAL INFORMATION

DESCRIPTION :

1st CARCASS : *Flexible rubber structure composed of smooth oil resistant extruded NBR main lining, adequate number of wire cords and steel wire helix, textile reinforcements & cover bonded together. For suction and discharge of crude oil and liquid petroleum products for Offshore Mooring.*

2nd CARCASS : *Additional carcass with oil retention channel, smooth oil and fuel resistant NBR lining, adequate number of textile reinforcements & abrasion resistant chloroprene rubber cover bonded together and vulcanized in a uniform manner. The 2nd carcass is designed to contain any product which may escape from the 1st carcass*

Floataction medium: *Closed cell expanded Polyethylene foam*

FITTING : *Built-in during hose construction*

ELECTRICALLY : *Continuous*

FAD : *Failure Alert Device "Mechanical System"*

MATERIAL :

LINING : *Smooth, oil resistant extruded (NBR)*

COVER : *Black rubber, high resistant to abrasion, oil, sunlight and seawater with longitudinal orange spiral.*

WIRE HELIX : *One helical wire embedded in syntetic rubber*

REINFORCED CORD : *Wire cord skimmed with rubber*

REFERENCE :

NORM : *Manufactured and tested according to GMPHOM 2009*

PROTOTYPE : *ABS report No: NP2087595 dated 22-May-2012*

MARKING :

MARKING "A" ON EACH END AT 180 ° :

MANUFACTURER: ANCHOR + "Manuli"

SPECIFICATION: GMPHOM 2009

DIAMETER: ID **600** mm

WORKING PRESSURE: RWP **19** bar

SERIAL NUMBER: mm yy _ _ _ _

MONTH / YEAR: _ _ _ _ _

CARCASS TYPE: DOUBLE CARCASS HOSE

HOSE TYPE: **H3006 SD2 FF DASH**

HOSE NAME: **POSEIDON**

TEMPORANEY ELONGATION : T.E. _ _ _ _ _ %

ELECTRICALLY: ELECTRICALLY CONTINUOUS

MARKING "B" ON EACH END AT 180 ° :

Serial number "mm-YY-Progressive nr. "welded on the rim of the flange

MARKING "C" ON EACH END AT 180 ° :

On the hose center : MANULI logo

FITTINGS DATA

NIPPLES :

- 1)The nipple body to be fabricated from:
- Alternative A: seamless steel pipe conforming to ASTM A-106 A or B or API-5L Grade A or B.
- Alternative B: steel plate conforming to ASTM A-285 C or equivalent.
- In both cases killed or semi-killed steel, with a maximum carbon content of 0.23 per cent.
- 2) All weld procedures and welders are to be qualified in accordance with ASME IX.
- 3) All welds, excluding band material welds, to be 100 per cent radiographed in accordance with EN 1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators. Interpretation of seam welds to be according to ASME VIII UW 51B
- 4) Band material to be equivalent to ASTM A-285 C, killed or semi-killed steel, with a maximum carbon content of 0.23 per cent. Band welds to be wet Magnetic Particle Inspected in accordance with ASME VIII, Appendix 6.
- 5) Nipple reference number to be stamped in zone 'X' at two places at 180°.

FLANGES :

- 6) The flange material to be in accordance with ASTM A-105 or equivalent normalised and with a maximum carbon content of 0.25 per cent. The flange rating to be in accordance with ASME B16.5.
- The class to be specified by the purchaser.
- 7) The flange face to have a finish equivalent to that specified in EN 1759-1 over its complete area after galvanisation.
- 8) The flanges to be identifiable by a mill number stamped on the flange edge.

RATING :

"A" END : ASME 150 FF

"B" END : ASME 150 FF

FITTINGS :

- 9) The circumferential welds between nipple and flange to be 100 per cent radiographed. All weld procedures and welders to be qualified in accordance with ASME IX. The quality and definition of radiographs to be in accordance with EN1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators.
- 10)Interpretation of butt welds to be according to API 1104.
- 11)Fitting manufacturer serial number to be stamped on the back of the flange, zone "Y" at two places at 180°.

COATING :

- 12)The exposed internal and external surfaces of the end fittings and flanges (including flange faces) to be protected by hot dip galvanisation in accordance with EN ISO 1461.
- Surface Preparation: Grit blasting to SA 2½, followed by pickling in acid. Coating: Minimum average coating weight 610 g/m² (equivalent to 85 µm thickness).
- Zinc Composition: Bath impurities to comply with the limits specified in EN ISO 1461. Appearance: Coating shall be visually free from nodules, blisters, roughness, sharp points and uncoated areas.

HOSE PERFORMANCE DATA

RATED WORKING PRESSURE	19 bar	MAXIMUM PERMANENT ELONGATION	0,70%
TEST PRESSURE	28,5 bar	MAXIMUM AROMATICS CONTENT	UP TO 60%
MINIMUM BURST PRESSURE - 1st CARCASS	95 bar	MAXIMUM FLOW VELOCITY	UP TO 21 m/s
MINIMUM BURST PRESSURE - 2nd CARCASS	38 bar	FLUID TEMPERATURE RANGE	-20 °c +82 °c
MINIMUM BENDING RADIUS	3,0 m	AMBIENT TEMPERATURE RANGE	-29 °c +52 °c
MAXIMUM TEMPORARY ELONGATION	2,50%	MINIMUM RESERVE BUOYANCY	20%

ALL DATA ARE NOMINALLY CORRECT AND MAY VERY WITHOUT NOTICE

WEIGHT :		OUT DIAMETER :		
600mm (24") x 10,7m (35') = 5704 Kg		Body= 1168 mm End= 1269 mm		
A	03/10/2012	MODIFIED FROM OCIMF'91 TO GMPHOM2009	L.Fortuna	A.Siliquini
0	03/08/2011	FIRST ISSUE	L.Fortuna	A.Siliquini
REV	DATE	REVISION	PREPARED	REVIEWED
SCALE	PROPERTY INFORMATION : THIS DOCUMENT AND DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR DISCLOSED WHOLE OR IN PART TO ANYONE WITHOUT PERMISSION OF MANULI RUBBER INDUSTRIES spa			
NOT TO SCALE				
A3				

H3006SD2 FF DASH POSEIDON 600mm (24") RWP19bar

Double Carcass Specially Designed One end

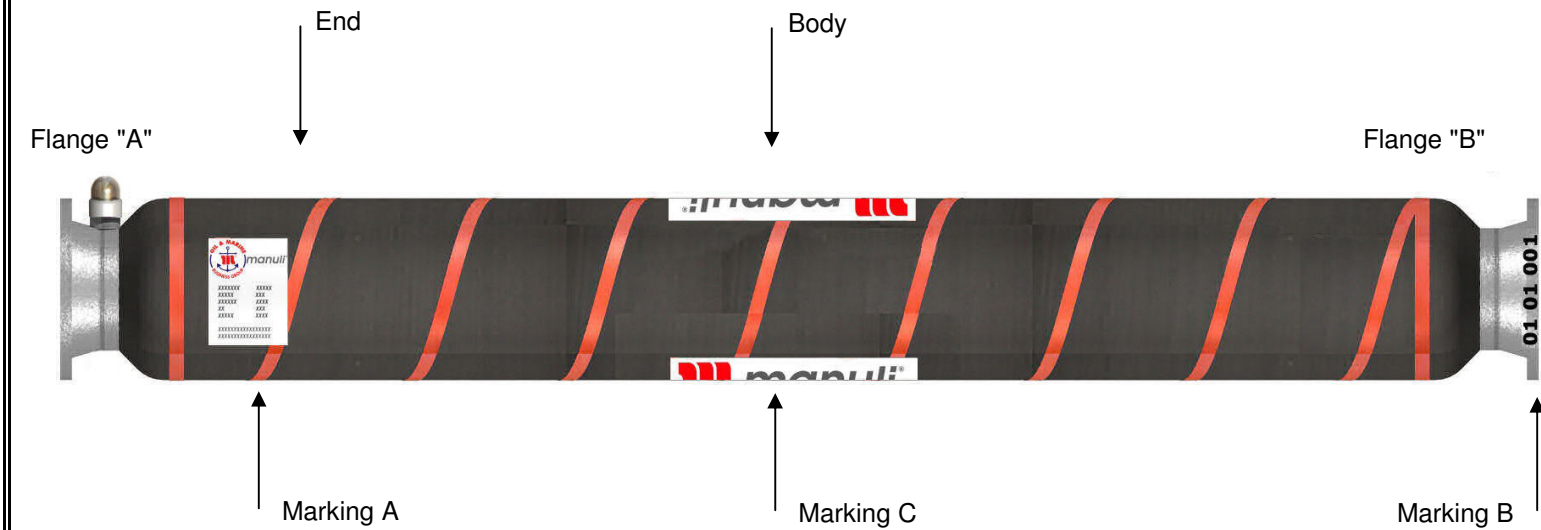
Reinforced Full Floating Hose

(2nd off the buoy) to GMPHOM 2009 spec

for Caspian Pipeline Consortium



TD. 01.0011/55



GENERAL INFORMATION

DESCRIPTION :

1st CARCASS : *Flexible rubber structure composed of smooth oil resistant extruded NBR main lining, adequate number of wire cords and steel wire helix, textile reinforcements & cover bonded together. For suction and discharge of crude oil and liquid petroleum products for Offshore Mooring.*

2nd CARCASS : *Additional carcass with oil retention channel, smooth oil and fuel resistant NBR lining, adequate number of textile reinforcements & abrasion resistant chloroprene rubber cover bonded together and vulcanized in a uniform manner. The 2nd carcass is designed to contain any product which may escape from the 1st carcass*

Floatation medium: *Closed cell expanded Polyethylene foam*

FITTING : *Built-in during hose construction*

ELECTRICALLY : *Continuous*

FAD : *Failure Alert Device "Mechanical System"*

MATERIAL :

LINING : *Smooth, oil resistant extruded (NBR)*

COVER : *Black rubber, high resistant to abrasion, oil, sunlight and seawater with longitudinal orange spiral.*

WIRE HELIX : *One helical wire embedded in syntetic rubber*

REINFORCED CORD : *Wire cord skimmed with rubber*

REFERENCE :

NORM : *Manufactured and tested according to GMPHOM 2009*

PROTOTYPE : *ABS report No: NP2087595 dated 22-May-2012*

MARKING :

MARKING "A" ON EACH END AT 180 ° :

MANUFACTURER: ANCHOR + "Manuli"

SPECIFICATION: GMPHOM 2009

DIAMETER: ID **600** mm

WORKING PRESSURE: RWP **19** bar

SERIAL NUMBER: mm yy _ _ _ _

MONTH / YEAR: _ _ _ _ _

CARCASS TYPE: DOUBLE CARCASS HOSE

HOSE TYPE: **H3030 SD3 FF DASH**

HOSE NAME: **POSEIDON**

TEMPORANEY ELONGATION : T.E. _ _ _ _ _ %

ELECTRICALLY: ELECTRICALLY CONTINUOUS

MARKING "B" ON EACH END AT 180 ° :

Serial number "mm-YY-Progressive nr. "welded on the rim of the flange

MARKING "C" ON EACH END AT 180 ° :

On the hose center : MANULI logo

FITTINGS DATA

NIPPLES :

- 1)The nipple body to be fabricated from:
- Alternative A: seamless steel pipe conforming to ASTM A-106 A or B or API-5L Grade A or B.
- Alternative B: steel plate conforming to ASTM A-285 C or equivalent.
- In both cases killed or semi-killed steel, with a maximum carbon content of 0.23 per cent.
- 2) All weld procedures and welders are to be qualified in accordance with ASME IX.
- 3) All welds, excluding band material welds, to be 100 per cent radiographed in accordance with EN 1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators. Interpretation of seam welds to be according to ASME VIII UW 51B
- 4) Band material to be equivalent to ASTM A-285 C, killed or semi-killed steel, with a maximum carbon content of 0.23 per cent. Band welds to be wet Magnetic Particle Inspected in accordance with ASME VIII, Appendix 6.
- 5) Nipple reference number to be stamped in zone 'X' at two places at 180°.

FLANGES :

- 6) The flange material to be in accordance with ASTM A-105 or equivalent normalised and with a maximum carbon content of 0.25 per cent. The flange rating to be in accordance with ASME B16.5.
- The class to be specified by the purchaser.
- 7) The flange face to have a finish equivalent to that specified in EN 1759-1 over its complete area after galvanisation.
- 8) The flanges to be identifiable by a mill number stamped on the flange edge.

RATING :

"A" END : ASME 150 FF

"B" END : ASME 150 FF

FITTINGS :

- 9) The circumferential welds between nipple and flange to be 100 per cent radiographed. All weld procedures and welders to be qualified in accordance with ASME IX. The quality and definition of radiographs to be in accordance with EN1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators.
- 10)Interpretation of butt welds to be according to API 1104.
- 11)Fitting manufacturer serial number to be stamped on the back of the flange, zone 'Y' at two places at 180°.

COATING :

- 12)The exposed internal and external surfaces of the end fittings and flanges (including flange faces) to be protected by hot dip galvanisation in accordance with EN ISO 1461.
- Surface Preparation: Grit blasting to SA 2½, followed by pickling in acid. Coating: Minimum average coating weight 610 g/m² (equivalent to 85 µm thickness).
- Zinc Composition: Bath impurities to comply with the limits specified in EN ISO 1461. Appearance: Coating shall be visually free from nodules, blisters, roughness, sharp points and uncoated areas.

HOSE PERFORMANCE DATA

RATED WORKING PRESSURE	19 bar	MAXIMUM PERMANENT ELONGATION	0,70%
TEST PRESSURE	28,5 bar	MAXIMUM AROMATICS CONTENT	UP TO 60%
MINIMUM BURST PRESSURE - 1st CARCASS	95 bar	MAXIMUM FLOW VELOCITY	UP TO 21 m/s
MINIMUM BURST PRESSURE - 2nd CARCASS	38 bar	FLUID TEMPERATURE RANGE	-20 °c +82 °c
MINIMUM BENDING RADIUS	3,0 m	AMBIENT TEMPERATURE RANGE	-29 °c +52 °c
MAXIMUM TEMPORARY ELONGATION	2,50%	MINIMUM RESERVE BUOYANCY	20%

ALL DATA ARE NOMINALLY CORRECT AND MAY VERY WITHOUT NOTICE

WEIGHT :		OUT DIAMETER :		
600mm (24") x 10,7m (35') = 4500 Kg		Body=1057mm End=1158mm		
A	03/10/2012	MODIFIED FROM OCIMF'91 TO GMPHOM2009	L.Fortuna	A.Siliquini
0	03/08/2011	FIRST ISSUE	L.Fortuna	A.Siliquini
<i>REV</i>	<i>DATE</i>	<i>REVISION</i>	<i>PREPARED</i>	<i>REVIEWED</i>
<i>SCALE</i>	PROPERTY INFORMATION : THIS DOCUMENT AND DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR DISCLOSED WHOLE OR IN PART TO ANYONE WITHOUT PERMISSION OF MANULI RUBBER INDUSTRIES spa			
<i>NOT TO SCALE</i>				
A3				

H3030 SD3 FF DASH POSEIDON 600mm (24") RWP 19bar

Double Carcass Specially Designed Mainline

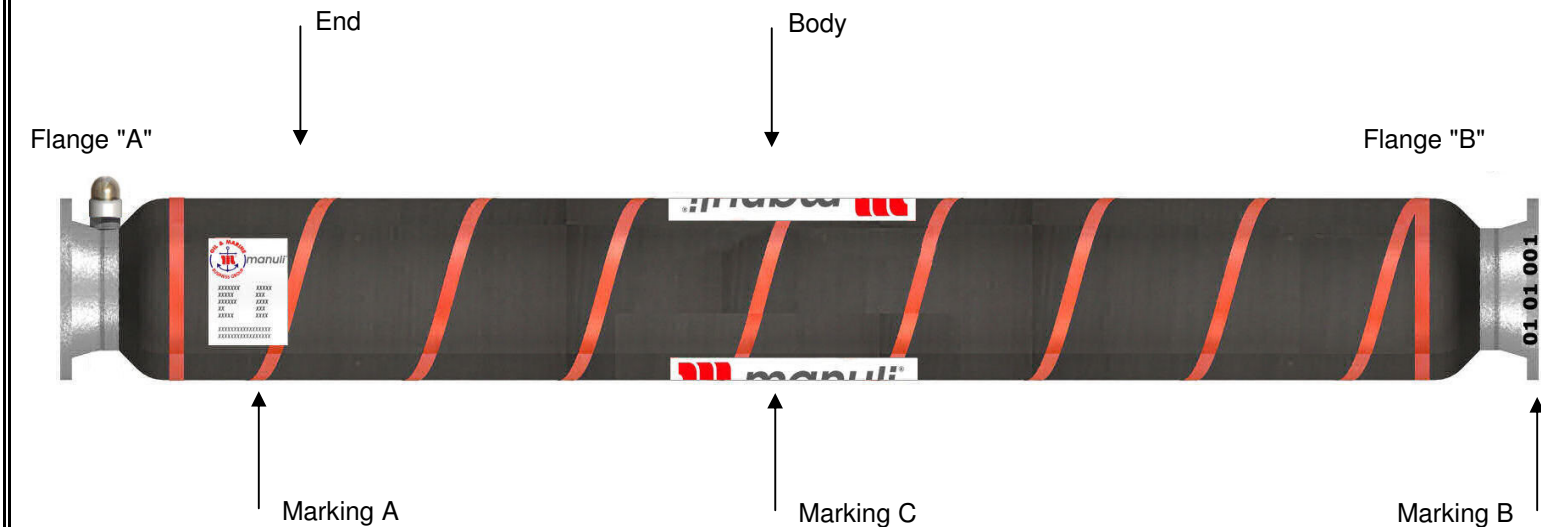
Full Floating Hose (3th off the buoy)

to GMPHOM 2009 spec

for Caspian Pipeline Consortium



TD. 01.0011/56



GENERAL INFORMATION

DESCRIPTION :

1st CARCASS : *Flexible rubber structure composed of smooth oil resistant extruded NBR main lining, adequate number of wire cords and steel wire helix, textile reinforcements & cover bonded together. For suction and discharge of crude oil and liquid petroleum products for Offshore Mooring.*

2nd CARCASS : *Additional carcass with oil retention channel, smooth oil and fuel resistant NBR lining, adequate number of textile reinforcements & abrasion resistant chloroprene rubber cover bonded together and vulcanized in a uniform manner. The 2nd carcass is designed to contain any product which may escape from the 1st carcass*

Floataction medium: *Closed cell expanded Polyethylene foam*

FITTING : *Built-in during hose construction*

ELECTRICALLY : *Continuous*

FAD : *Failure Alert Device "Mechanical System"*

MATERIAL :

LINING : *Smooth, oil resistant extruded (NBR)*

COVER : *Black rubber, high resistant to abrasion, oil, sunlight and seawater with longitudinal orange spiral.*

WIRE HELIX : *One helical wire embedded in syntetic rubber*

REINFORCED CORD : *Wire cord skimmed with rubber*

REFERENCE :

NORM : *Manufactured and tested according to GMPHOM 2009*

PROTOTYPE : *ABS report No: NP2087595 dated 22-May-2012*

MARKING :

MARKING "A" ON EACH END AT 180 ° :

MANUFACTURER: ANCHOR + "Manuli"

SPECIFICATION: GMPHOM 2009

DIAMETER: ID **600** mm

WORKING PRESSURE: RWP **19** bar

SERIAL NUMBER: mm yy _ _ _ _

MONTH / YEAR: _ _ _ _ _

CARCASS TYPE: DOUBLE CARCASS HOSE

HOSE TYPE: **H3030 SD4 FF DASH**

HOSE NAME: **POSEIDON**

TEMPORANEY ELONGATION : T.E. _ _ _ _ _ %

ELECTRICALLY: ELECTRICALLY CONTINUOUS

MARKING "B" ON EACH END AT 180 ° :

Serial number "mm-YY-Progressive nr. "welded on the rim of the flange

MARKING "C" ON EACH END AT 180 ° :

On the hose center : MANULI logo

FITTINGS DATA

NIPPLES :

- 1)The nipple body to be fabricated from:
- Alternative A: seamless steel pipe conforming to ASTM A-106 A or B or API-5L Grade A or B.
- Alternative B: steel plate conforming to ASTM A-285 C or equivalent.
- In both cases killed or semi-killed steel, with a maximum carbon content of 0.23 per cent.
- 2) All weld procedures and welders are to be qualified in accordance with ASME IX.
- 3) All welds, excluding band material welds, to be 100 per cent radiographed in accordance with EN 1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators. Interpretation of seam welds to be according to ASME VIII UW 51B
- 4) Band material to be equivalent to ASTM A-285 C, killed or semi-killed steel, with a maximum carbon content of 0.23 per cent. Band welds to be wet Magnetic Particle Inspected in accordance with ASME VIII, Appendix 6.
- 5) Nipple reference number to be stamped in zone 'X' at two places at 180°.

FLANGES :

- 6) The flange material to be in accordance with ASTM A-105 or equivalent normalised and with a maximum carbon content of 0.25 per cent. The flange rating to be in accordance with ASME B16.5.
- The class to be specified by the purchaser.
- 7) The flange face to have a finish equivalent to that specified in EN 1759-1 over its complete area after galvanisation.
- 8) The flanges to be identifiable by a mill number stamped on the flange edge.

RATING :

"A" END : ASME 150 FF

"B" END : ASME 150 FF

FITTINGS :

- 9) The circumferential welds between nipple and flange to be 100 per cent radiographed. All weld procedures and welders to be qualified in accordance with ASME IX. The quality and definition of radiographs to be in accordance with EN1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators.
- 10)Interpretation of butt welds to be according to API 1104.
- 11)Fitting manufacturer serial number to be stamped on the back of the flange, zone 'Y' at two places at 180°.

COATING :

- 12)The exposed internal and external surfaces of the end fittings and flanges (including flange faces) to be protected by hot dip galvanisation in accordance with EN ISO 1461.
- Surface Preparation: Grit blasting to SA 2½, followed by pickling in acid. Coating: Minimum average coating weight 610 g/m² (equivalent to 85 µm thickness).
- Zinc Composition: Bath impurities to comply with the limits specified in EN ISO 1461. Appearance: Coating shall be visually free from nodules, blisters, roughness, sharp points and uncoated areas.

HOSE PERFORMANCE DATA

RATED WORKING PRESSURE	19 bar	MAXIMUM PERMANENT ELONGATION	0,70%
TEST PRESSURE	28,5 bar	MAXIMUM AROMATICS CONTENT	UP TO 60%
MINIMUM BURST PRESSURE - 1st CARCASS	95 bar	MAXIMUM FLOW VELOCITY	UP TO 21 m/s
MINIMUM BURST PRESSURE - 2nd CARCASS	38 bar	FLUID TEMPERATURE RANGE	-20 °c +82 °c
MINIMUM BENDING RADIUS	3,0 m	AMBIENT TEMPERATURE RANGE	-29 °c +52 °c
MAXIMUM TEMPORARY ELONGATION	2,50%	MINIMUM RESERVE BUOYANCY	20%



ALL DATA ARE NOMINALLY CORRECT AND MAY VERY WITHOUT NOTICE




WEIGHT :		OUT DIAMETER :		
600mm (24") x 10,7m (35') = 4500 Kg		Body=1057 mm End=1158 mm		
A	03/10/2012	MODIFIED FROM OCIMF'91 TO GMPHOM2009	L.Fortuna	A.Siliquini
0	03/08/2011	FIRST ISSUE	L.Fortuna	A.Siliquini
REV	DATE	REVISION	PREPARED	REVIEWED
SCALE	PROPERTY INFORMATION : THIS DOCUMENT AND DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR DISCLOSED WHOLE OR IN PART TO ANYONE WITHOUT PERMISSION OF MANULI RUBBER INDUSTRIES spa			
NOT TO SCALE				
A3				

H3030 SD4 FF DASH POSEIDON 600mm (24") RWP 19bar
Double Carcass Specially Designed Mainline
Full Floating Hose (4th off the buoy)
to GMPHOM spec
for Caspian Pipeline Consortium

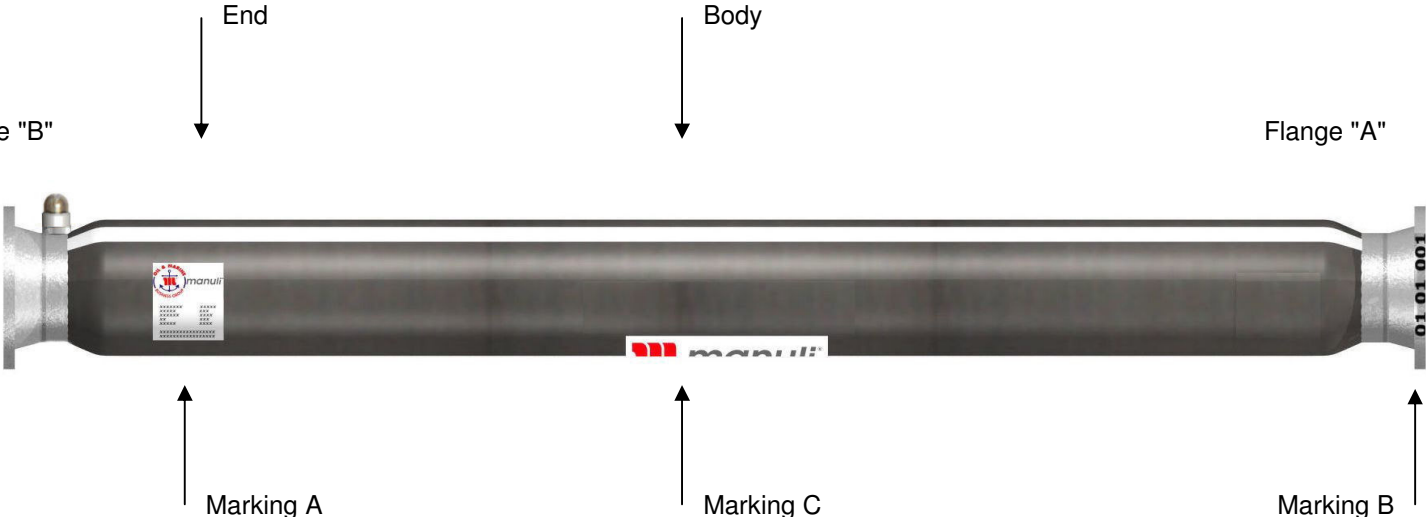


TD. 01.0011/57

<div><div><div><div>End</div><div>Body</div><div>Reducer End</div></div><div><div>Flange "B"</div><div>Flange "A"</div></div><div><div>TAPERED REINFORCEMENT</div><div>Marking A</div><div>Marking C</div><div>Marking B</div></div></div></div>		<div>FITTINGS DATA</div> <div>NIPPLES :<div>1)The nipple body to be fabricated from:<div>Alternative A: seamless steel pipe conforming to ASTM A-106 A or B or API-5L Grade A or B.</div><div>Alternative B: steel plate conforming to ASTM A-285 C or equivalent.</div><div>In both cases killed or semi-killed steel, with a maximum carbon content of 0.23 per cent.</div></div><div>2) All weld procedures and welders are to be qualified in accordance with ASME IX.</div><div>3) All welds, excluding band material welds, to be 100 per cent radiographed in accordance with EN 1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators. Interpretation of seam welds to be according to ASME VIII UW 51B</div><div>4) Band material to be equivalent to ASTM A-285 C, killed or semi-killed steel, with a maximum carbon content of 0.23 per cent. Band welds to be wet Magnetic Particle Inspected in accordance with ASME VIII, Appendix 6.</div><div>5) Nipple reference number to be stamped in zone 'X' at two places at 180°.</div></div> <div>FLANGES :<div>6) The flange material to be in accordance with ASTM A-105 or equivalent normalised and with a maximum carbon content of 0.25 per cent. The flange rating to be in accordance with ASME B16.5.</div><div>The class to be specified by the purchaser.</div><div>7) The flange face to have a finish equivalent to that specified in EN 1759-1 over its complete area after galvanisation.</div><div>8) The flanges to be identifiable by a mill number stamped on the flange edge.</div></div> <div>RATING :<div>"A" END : ASME 150 FF</div><div>"B" END : ASME 150 FF</div></div> <div>FITTINGS :<div>9) The circumferential welds between nipple and flange to be 100 per cent radiographed. All weld procedures and welders to be qualified in accordance with ASME IX. The quality and definition of radiographs to be in accordance with EN1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators.</div><div>10)Interpretation of butt welds to be according to API 1104.</div><div>11)Fitting manufacturer serial number to be stamped on the back of the flange, zone 'Y' at two places at 180°.</div></div> <div>COATING :<div>12)The exposed internal and external surfaces of the end fittings and flanges (including flange faces) to be protected by hot dip galvanisation in accordance with EN ISO 1461.</div><div>Surface Preparation: Grit blasting to SA 2½, followed by pickling in acid. Coating: Minimum average coating weight 610 g/m² (equivalent to 85 µm thickness).</div><div>Zinc Composition: Bath impurities to comply with the limits specified in EN ISO 1461. Appearance: Coating shall be visually free from nodules, blisters, roughness, sharp points and uncoated areas.</div></div>																																																																	
<div>GENERAL INFORMATION</div> <div>DESCRIPTION :<div>1st CARCASS : <i>Flexible rubber structure composed of smooth oil resistant extruded NBR main lining, adequate number of wire cords and steel wire helix, textile reinforcements & cover bonded together. For suction and discharge of crude oil and liquid petroleum products for Offshore Mooring.</i></div><div>2nd CARCASS : <i>Additional carcass with oil retention channel, smooth oil and fuel resistant NBR lining, adequate number of textile reinforcements & abrasion resistant chloroprene rubber cover bonded together and vulcanized in a uniform manner. The 2nd carcass is designed to contain any product which may escape from the 1st carcass</i></div><div>Floataction medium: <i>Closed cell expanded Polyethylene foam</i></div><div>FITTING : <i>Built-in during hose construction</i></div><div>ELECTRICALLY : <i>Continuous</i></div><div>FAD : <i>Failure Alert Device "Mechanical System"</i></div></div> <div>MATERIAL :<div>LINING : <i>Smooth, oil resistant extruded (NBR)</i></div><div>COVER : <i>Black rubber, high resistant to abrasion, oil, sunlight and seawater with longitudinal orange spiral.</i></div><div>WIRE HELIX : <i>One helical wire embedded in syntetic rubber</i></div><div>REINFORCED CORD : <i>Wire cord skimmed with rubber</i></div></div>		<div>REFERENCE :<div>NORM : <i>Manufactured and tested according to GMPHOM 2009</i></div><div>PROTOTYPE : <i>ABS report No: NP2087595 dated 22-May-2012</i></div></div> <div>MARKING :<div>MARKING "A" ON EACH END AT 180 ° :<div>MANUFACTURER: ANCHOR + "Manuli"</div><div>SPECIFICATION: GMPHOM 2009</div><div>DIAMETER: ID 600/400 mm</div><div>WORKING PRESSURE: RWP 19 bar</div><div>SERIAL NUMBER: mm yy _ _ _ _</div><div>MONTH / YEAR: _ _ _ _ _</div><div>CARCASS TYPE: DOUBLE CARCASS HOSE</div><div>HOSE TYPE: H3232 FF DASH</div><div>HOSE NAME: POSEIDON</div><div>TEMPORANEY ELONGATION : T.E. _ _ _ _ _ %</div><div>ELECTRICALLY: ELECTRICALLY CONTINUOUS</div></div><div>MARKING "B" ON EACH END AT 180 ° :<div>Serial number "mm-YY-Progressive nr. "welded on the rim of the flange</div></div><div>MARKING "C" ON EACH END AT 180 ° :<div>On the hose center : MANULI logo</div></div></div>		<div>HOSE PERFORMANCE DATA</div> <table><tr><td>RATED WORKING PRESSURE</td><td>19 bar</td><td>MAXIMUM PERMANENT ELONGATION</td><td>0,70%</td></tr><tr><td>TEST PRESSURE</td><td>28,5 bar</td><td>MAXIMUM AROMATICS CONTENT</td><td>UP TO 60%</td></tr><tr><td>MINIMUM BURST PRESSURE - 1st CARCASS</td><td>95 bar</td><td>MAXIMUM FLOW VELOCITY</td><td>UP TO 21 m/s</td></tr><tr><td>MINIMUM BURST PRESSURE - 2nd CARCASS</td><td>38 bar</td><td>FLUID TEMPERATURE RANGE</td><td>-20 °c +82 °c</td></tr><tr><td>MINIMUM BENDING RADIUS</td><td>2,4 m</td><td>AMBIENT TEMPERATURE RANGE</td><td>-29 °c +52 °c</td></tr><tr><td>MAXIMUM TEMPORARY ELONGATION</td><td>2,50%</td><td>MINIMUM RESERVE BUOYANCY</td><td>20%</td></tr></table> <div>ALL DATA ARE NOMINALLY CORRECT AND MAY VERY WITHOUT NOTICE</div> <div>WEIGHT :<div>600mm/400mm(24"/16") x 10,7m (35') = 3005 Kg</div></div> <div>OUT DIAMETER :<div>Body=798mm End=879mm</div></div> <table><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td>A</td><td>03/10/2012</td><td>MODIFIED FROM OCIMF'91 TO GMPHOM2009</td><td>L.Fortuna</td><td>A.Siliquini</td></tr><tr><td>0</td><td>03/08/2011</td><td>FIRST ISSUE</td><td>L.Fortuna</td><td>A.Siliquini</td></tr><tr><td>REV</td><td>DATE</td><td>REVISION</td><td>PREPARED</td><td>REVIEWED</td></tr><tr><td>SCALE</td><td colspan="4" rowspan="3">PROPERTY INFORMATION :<div>THIS DOCUMENT AND DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR DISCLOSED WHOLE OR IN PART TO ANYONE WITHOUT PERMISSION OF MANULI RUBBER INDUSTRIES spa</div></td></tr><tr><td>NOT TO SCALE</td></tr><tr><td>A3</td></tr></table> <div><div>H3232 FF DASH POSEIDON 600/400mm (24"/16") RWP19bar Double Carcass Reducer Full Floating Hose to GMPHOM spec for Caspian Pipeline Consortium</div><div><div></div><div>TD. 01.0011/59</div></div></div>			RATED WORKING PRESSURE	19 bar	MAXIMUM PERMANENT ELONGATION	0,70%	TEST PRESSURE	28,5 bar	MAXIMUM AROMATICS CONTENT	UP TO 60%	MINIMUM BURST PRESSURE - 1st CARCASS	95 bar	MAXIMUM FLOW VELOCITY	UP TO 21 m/s	MINIMUM BURST PRESSURE - 2nd CARCASS	38 bar	FLUID TEMPERATURE RANGE	-20 °c +82 °c	MINIMUM BENDING RADIUS	2,4 m	AMBIENT TEMPERATURE RANGE	-29 °c +52 °c	MAXIMUM TEMPORARY ELONGATION	2,50%	MINIMUM RESERVE BUOYANCY	20%																A	03/10/2012	MODIFIED FROM OCIMF'91 TO GMPHOM2009	L.Fortuna	A.Siliquini	0	03/08/2011	FIRST ISSUE	L.Fortuna	A.Siliquini	REV	DATE	REVISION	PREPARED	REVIEWED	SCALE	PROPERTY INFORMATION : <div>THIS DOCUMENT AND DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR DISCLOSED WHOLE OR IN PART TO ANYONE WITHOUT PERMISSION OF MANULI RUBBER INDUSTRIES spa</div>				NOT TO SCALE	A3
RATED WORKING PRESSURE	19 bar	MAXIMUM PERMANENT ELONGATION	0,70%																																																																
TEST PRESSURE	28,5 bar	MAXIMUM AROMATICS CONTENT	UP TO 60%																																																																
MINIMUM BURST PRESSURE - 1st CARCASS	95 bar	MAXIMUM FLOW VELOCITY	UP TO 21 m/s																																																																
MINIMUM BURST PRESSURE - 2nd CARCASS	38 bar	FLUID TEMPERATURE RANGE	-20 °c +82 °c																																																																
MINIMUM BENDING RADIUS	2,4 m	AMBIENT TEMPERATURE RANGE	-29 °c +52 °c																																																																
MAXIMUM TEMPORARY ELONGATION	2,50%	MINIMUM RESERVE BUOYANCY	20%																																																																
A	03/10/2012	MODIFIED FROM OCIMF'91 TO GMPHOM2009	L.Fortuna	A.Siliquini																																																															
0	03/08/2011	FIRST ISSUE	L.Fortuna	A.Siliquini																																																															
REV	DATE	REVISION	PREPARED	REVIEWED																																																															
SCALE	PROPERTY INFORMATION : <div>THIS DOCUMENT AND DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR DISCLOSED WHOLE OR IN PART TO ANYONE WITHOUT PERMISSION OF MANULI RUBBER INDUSTRIES spa</div>																																																																		
NOT TO SCALE																																																																			
A3																																																																			

<div><div><div>End</div><div>Body</div><div>Flange "B"</div><div>Flange "A"</div><div>Marking A</div><div>Marking C</div><div>Marking B</div></div></div>		<div><div><div>FITTINGS DATA</div><div>NIPPLES :<div>1)The nipple body to be fabricated from:<div>Alternative A: seamless steel pipe conforming to ASTM A-106 A or B or API-5L Grade A or B.<div>Alternative B: steel plate conforming to ASTM A-285 C or equivalent.<div>In both cases killed or semi-killed steel, with a maximum carbon content of 0.23 per cent.</div></div></div><div>2) All weld procedures and welders are to be qualified in accordance with ASME IX.</div><div>3) All welds, excluding band material welds, to be 100 per cent radiographed in accordance with EN 1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators. Interpretation of seam welds to be according to ASME VIII UW 51B</div><div>4) Band material to be equivalent to ASTM A-285 C, killed or semi-killed steel, with a maximum carbon content of 0.23 per cent. Band welds to be wet Magnetic Particle Inspected in accordance with ASME VIII, Appendix 6.</div><div>5) Nipple reference number to be stamped in zone 'X' at two places at 180°.</div></div></div><div><div>FLANGES :<div>6) The flange material to be in accordance with ASTM A-105 or equivalent normalised and with a maximum carbon content of 0.25 per cent. The flange rating to be in accordance with ASME B16.5.<div>The class to be specified by the purchaser.</div></div><div>7) The flange face to have a finish equivalent to that specified in EN 1759-1 over its complete area after galvanisation.</div><div>8) The flanges to be identifiable by a mill number stamped on the flange edge.</div></div></div><div><div>RATING :<div>"A" END : ASME 150 FF</div><div>"B" END : ASME 150 FF</div></div></div><div><div>FITTINGS :<div>9) The circumferential welds between nipple and flange to be 100 per cent radiographed. All weld procedures and welders to be qualified in accordance with ASME IX. The quality and definition of radiographs to be in accordance with EN1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators.</div><div>10)Interpretation of butt welds to be according to API 1104.</div><div>11)Fitting manufacturer serial number to be stamped on the back of the flange, zone 'Y' at two places at 180°.</div></div></div><div><div>COATING :<div>12)The exposed internal and external surfaces of the end fittings and flanges (including flange faces) to be protected by hot dip galvanisation in accordance with EN ISO 1461.<div>Surface Preparation: Grit blasting to SA 2½, followed by pickling in acid. Coating: Minimum average coating weight 610 g/m² (equivalent to 85 µm thickness).</div><div>Zinc Composition: Bath impurities to comply with the limits specified in EN ISO 1461. Appearance: Coating shall be visually free from nodules, blisters, roughness, sharp points and uncoated areas.</div></div></div></div></div></div>																																																																																	
<div><div><div>GENERAL INFORMATION</div><div>DESCRIPTION :<div>1st CARCASS : <i>Flexible rubber structure composed of smooth oil resistant extruded NBR main lining, adequate number of wire cords and steel wire helix, textile reinforcements & cover bonded together. For suction and discharge of crude oil and liquid petroleum products for Offshore Mooring.</i></div><div>2nd CARCASS : <i>Additional carcass with oil retention channel, smooth oil and fuel resistant NBR lining, adequate number of textile reinforcements & abrasion resistant chloroprene rubber cover bonded together and vulcanized in a uniform manner. The 2nd carcass is designed to contain any product which may escape from the 1st carcass</i></div><div>Floatation medium: <i>Closed cell expanded Polyethylene foam</i></div><div>FITTING : <i>Built-in during hose construction</i></div><div>ELECTRICALLY : <i>Discontinuous</i></div><div>FAD : <i>Failure Alert Device "Mechanical System"</i></div></div><div><div>MATERIAL :<div>LINING : <i>Smooth, oil resistant extruded (NBR)</i></div><div>COVER : <i>Polyurethane cover, orange in color, high resistant to abrasion, oil, sunlight and seawater.</i></div><div>WIRE HELIX : <i>One helical wire embedded in syntetic rubber</i></div><div>REINFORCED CORD : <i>Wire cord skimmed with rubber</i></div></div></div></div></div>		<div><div><div>REFERENCE :<div>NORM : <i>Manufactured and tested according to GMPHOM 2009</i></div><div>PROTOTYPE : <i>ABS report No: NP2087595 dated 22-May-2012</i></div></div><div><div>MARKING :<div>MARKING "A" ON EACH END AT 180 ° :<div>MANUFACTURER: ANCHOR + "Manuli"</div><div>SPECIFICATION: GMPHOM 2009</div><div>DIAMETER: ID 400 mm</div><div>WORKING PRESSURE: RWP 19 bar</div><div>SERIAL NUMBER: mm yy _ _ _ _</div><div>MONTH / YEAR: _ _ _ _ _</div><div>CARCASS TYPE: DOUBLE CARCASS HOSE</div><div>HOSE TYPE: H3030T FF DASH PU</div><div>HOSE NAME: POSEIDON</div><div>TEMPORANEY ELONGATION : T.E. _ _ _ _ _ %</div><div>ELECTRICALLY: ELECTRICALLY DISCONTINUOUS</div></div><div>MARKING "B" ON EACH END AT 180 ° :<div><i>Serial number "mm-YY-Progressive nr. "welded on the rim of the flange</i></div></div><div>MARKING "C" ON EACH END AT 180 ° :<div><i>On the hose center : MANULI logo</i></div></div></div></div></div></div>																																																																																	
		<div><div><div>HOSE PERFORMANCE DATA</div><table><tr><td>RATED WORKING PRESSURE</td><td>19 bar</td><td>MAXIMUM PERMANENT ELONGATION</td><td colspan="2">0,70%</td></tr><tr><td>TEST PRESSURE</td><td>28,5 bar</td><td>MAXIMUM AROMATICS CONTENT</td><td colspan="2">UP TO 60%</td></tr><tr><td>MINIMUM BURST PRESSURE - 1st CARCASS</td><td>95 bar</td><td>MAXIMUM FLOW VELOCITY</td><td colspan="2">UP TO 21 m/s</td></tr><tr><td>MINIMUM BURST PRESSURE - 2nd CARCASS</td><td>38 bar</td><td>FLUID TEMPERATURE RANGE</td><td colspan="2">-20°C +82°C</td></tr><tr><td>MINIMUM BENDING RADIUS</td><td>2,4 m</td><td>AMBIENT TEMPERATURE RANGE</td><td colspan="2">-29°C +52°C</td></tr><tr><td>MAXIMUM TEMPORARY ELONGATION</td><td>2,50%</td><td>MINIMUM RESERVE BUOYANCY</td><td colspan="2">20%</td></tr><tr><td></td><td></td><td></td><td colspan="2"></td></tr></table><div><div>ALL DATA ARE NOMINALLY CORRECT AND MAY VERY WITHOUT NOTICE</div><div><div>WEIGHT :<div>400mm (16") x 10,7m (35') = 3073Kg</div></div><div>OUT DIAMETER :<div>Body= 813 mm End= 894mm</div></div></div><table><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td>A</td><td>03/10/2012</td><td>MODIFIED FROM OCIMF'91 TO GMPHOM2009</td><td>L.Fortuna</td><td>A.Siliquini</td></tr><tr><td>0</td><td>03/08/2011</td><td>FIRST ISSUE</td><td>L.Fortuna</td><td>A.Siliquini</td></tr><tr><td>REV</td><td>DATE</td><td>REVISION</td><td>PREPARED</td><td>REVIEWED</td></tr><tr><td>SCALE</td><td colspan="4">PROPERTY INFORMATION :</td></tr><tr><td>NOT TO SCALE</td><td colspan="4">THIS DOCUMENT AND DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR DISCLOSED</td></tr><tr><td>A3</td><td colspan="4">WHOLE OR IN PART TO ANYONE WITHOUT PERMISSION OF MANULI RUBBER INDUSTRIES spa</td></tr></table><div><div><div>H3030T FF PU DASH POSEIDON 400mm (16") RWP 19bar</div><div>Double Carcass Tail Full Floating</div><div>Polyurethane Covered Hose</div><div>to GMPHOM spec</div><div>for Caspian Pipeline Consortium</div></div><div><div><div><div></div><div></div></div><div>TD. 01.0011/60</div></div></div></div></div></div></div>		RATED WORKING PRESSURE	19 bar	MAXIMUM PERMANENT ELONGATION	0,70%		TEST PRESSURE	28,5 bar	MAXIMUM AROMATICS CONTENT	UP TO 60%		MINIMUM BURST PRESSURE - 1st CARCASS	95 bar	MAXIMUM FLOW VELOCITY	UP TO 21 m/s		MINIMUM BURST PRESSURE - 2nd CARCASS	38 bar	FLUID TEMPERATURE RANGE	-20°C +82°C		MINIMUM BENDING RADIUS	2,4 m	AMBIENT TEMPERATURE RANGE	-29°C +52°C		MAXIMUM TEMPORARY ELONGATION	2,50%	MINIMUM RESERVE BUOYANCY	20%																						A	03/10/2012	MODIFIED FROM OCIMF'91 TO GMPHOM2009	L.Fortuna	A.Siliquini	0	03/08/2011	FIRST ISSUE	L.Fortuna	A.Siliquini	REV	DATE	REVISION	PREPARED	REVIEWED	SCALE	PROPERTY INFORMATION :				NOT TO SCALE	THIS DOCUMENT AND DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR DISCLOSED				A3	WHOLE OR IN PART TO ANYONE WITHOUT PERMISSION OF MANULI RUBBER INDUSTRIES spa			
RATED WORKING PRESSURE	19 bar	MAXIMUM PERMANENT ELONGATION	0,70%																																																																																
TEST PRESSURE	28,5 bar	MAXIMUM AROMATICS CONTENT	UP TO 60%																																																																																
MINIMUM BURST PRESSURE - 1st CARCASS	95 bar	MAXIMUM FLOW VELOCITY	UP TO 21 m/s																																																																																
MINIMUM BURST PRESSURE - 2nd CARCASS	38 bar	FLUID TEMPERATURE RANGE	-20°C +82°C																																																																																
MINIMUM BENDING RADIUS	2,4 m	AMBIENT TEMPERATURE RANGE	-29°C +52°C																																																																																
MAXIMUM TEMPORARY ELONGATION	2,50%	MINIMUM RESERVE BUOYANCY	20%																																																																																
A	03/10/2012	MODIFIED FROM OCIMF'91 TO GMPHOM2009	L.Fortuna	A.Siliquini																																																																															
0	03/08/2011	FIRST ISSUE	L.Fortuna	A.Siliquini																																																																															
REV	DATE	REVISION	PREPARED	REVIEWED																																																																															
SCALE	PROPERTY INFORMATION :																																																																																		
NOT TO SCALE	THIS DOCUMENT AND DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR DISCLOSED																																																																																		
A3	WHOLE OR IN PART TO ANYONE WITHOUT PERMISSION OF MANULI RUBBER INDUSTRIES spa																																																																																		

<div><div><div>End</div><div>Body</div><div>Tanker End</div></div><div><div>Flange "B"</div><div>Flange "A"</div></div><div><div>Marking A</div><div>Marking C</div><div>Marking B</div></div></div>		<div>FITTINGS DATA</div> <div>NIPPLES :<div>1)The nipple body to be fabricated from:<div>Alternative A: seamless steel pipe conforming to ASTM A-106 A or B or API-5L Grade A or B.<div>Alternative B: steel plate conforming to ASTM A-285 C or equivalent.<div>In both cases killed or semi-killed steel, with a maximum carbon content of 0.23 per cent.</div></div></div><div>2) All weld procedures and welders are to be qualified in accordance with ASME IX.</div><div>3) All welds, excluding band material welds, to be 100 per cent radiographed in accordance with EN 1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators. Interpretation of seam welds to be according to ASME VIII UW 51B</div><div>4) Band material to be equivalent to ASTM A-285 C, killed or semi-killed steel, with a maximum carbon content of 0.23 per cent. Band welds to be wet Magnetic Particle Inspected in accordance with ASME VIII, Appendix 6.</div><div>5) Nipple reference number to be stamped in zone 'X' at two places at 180°.</div></div></div> <div>FLANGES :<div>6) The flange material to be in accordance with ASTM A-105 or equivalent normalised and with a maximum carbon content of 0.25 per cent. The flange rating to be in accordance with ASME B16.5.<div>The class to be specified by the purchaser.</div></div><div>7) The flange face to have a finish equivalent to that specified in EN 1759-1 over its complete area after galvanisation.</div><div>8) The flanges to be identifiable by a mill number stamped on the flange edge.</div></div> <div>RATING :<div>"A" END : ASME 150 FF + 4 LIFTING LUGS<div>"B" END : ASME 150 FF + 4 LIFTING LUGS</div></div></div> <div>FITTINGS :<div>9) The circumferential welds between nipple and flange to be 100 per cent radiographed. All weld procedures and welders to be qualified in accordance with ASME IX. The quality and definition of radiographs to be in accordance with EN1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators.</div><div>10)Interpretation of butt welds to be according to API 1104.</div><div>11)Fitting manufacturer serial number to be stamped on the back of the flange, zone 'Y' at two places at 180°.</div></div> <div>COATING :<div>12)The exposed internal and external surfaces of the end fittings and flanges (including flange faces) to be protected by hot dip galvanisation in accordance with EN ISO 1461.<div>Surface Preparation: Grit blasting to SA 2½, followed by pickling in acid. Coating: Minimum average coating weight 610 g/m² (equivalent to 85 µm thickness).<div>Zinc Composition: Bath impurities to comply with the limits specified in EN ISO 1461. Appearance: Coating shall be visually free from nodules, blisters, roughness, sharp points and uncoated areas.</div></div></div></div>																																																																																			
<div>GENERAL INFORMATION</div> <div>DESCRIPTION :<div>1st CARCASS : <i>Flexible rubber structure composed of smooth oil resistant extruded NBR main lining, adequate number of wire cords and steel wire helix, textile reinforcements & cover bonded together. For suction and discharge of crude oil and liquid petroleum products for Offshore Mooring.</i></div><div>2nd CARCASS : <i>Additional carcass with oil retention channel, smooth oil and fuel resistant NBR lining, adequate number of textile reinforcements & abrasion resistant chloroprene rubber cover bonded together and vulcanized in a uniform manner. The 2nd carcass is designed to contain any product which may escape from the 1st carcass</i></div><div>Floataction medium: <i>Closed cell expanded Polyethylene foam</i><div>FITTING : <i>Built-in during hose construction</i><div>ELECTRICALLY : <i>Discontinuous</i><div>FAD : <i>Failure Alert Device "Mechanical System"</i></div></div></div></div></div> <div>MATERIAL :<div>LINING : <i>Smooth, oil resistant extruded (NBR)</i></div><div>COVER : <i>Polyurethane cover, orange in color, high resistant to abrasion, oil, sunlight and seawater</i></div><div>WIRE HELIX : <i>One helical wire embedded in syntetic rubber</i></div><div>REINFORCED CORD : <i>Wire cord skimmed with rubber</i></div></div>		<div>REFERENCE :<div>NORM : <i>Manufactured and tested according to GMPHOM 2009</i></div><div>PROTOTYPE : <i>ABS report No: NP2087595 dated 22-May-2012</i></div></div> <div>MARKING :<div>MARKING "A" ON EACH END AT 180 ° :<div>MANUFACTURER: ANCHOR + "Manuli"<div>SPECIFICATION: GMPHOM 2009<div>DIAMETER: ID 400 mm<div>WORKING PRESSURE: RWP 19 bar<div>SERIAL NUMBER: mmyy ____<div>MONTH / YEAR: _____<div>CARCASS TYPE: DOUBLE CARCASS HOSE<div>HOSE TYPE: H3838 DF EB DASH PU<div>HOSE NAME : POSEIDON<div>TEMPORARY ELONGATION : T.E. _____ %<div>ELECTRICALLY : ELECTRICALLY DISCONTINUOUS<div>LENGTH : <i>O.L.</i> ____mm<div>WEIGHT EMPTY: <i>WEIGHT EMPTY</i>____Kg<div>WEIGHT FULL OF SEA WATER: <i>W. Full of sea water</i> ____Kg</div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div> <div>MARKING "B" ON EACH END AT 180 ° :<div>Serial number "mm-YY-Progressive nr. "welded on the rim of the flange</div></div> <div>MARKING "C" ON EACH END AT 180 ° :<div>On the hose center : MANULI logo</div></div>		<div>HOSE PERFORMANCE DATA</div> <table><tr><td>RATED WORKING PRESSURE</td><td>19 bar</td><td>MAXIMUM PERMANENT ELONGATION</td><td colspan="2">0,70%</td></tr><tr><td>TEST PRESSURE</td><td>28,5 bar</td><td>MAXIMUM AROMATICS CONTENT</td><td colspan="2">UP TO 60%</td></tr><tr><td>MINIMUM BURST PRESSURE - 1st CARCASS</td><td>95 bar</td><td>MAXIMUM FLOW VELOCITY</td><td colspan="2">UP TO 21 m/s</td></tr><tr><td>MINIMUM BURST PRESSURE - 2nd CARCASS</td><td>38 bar</td><td>FLUID TEMPERATURE RANGE</td><td colspan="2">-20°c +82°c</td></tr><tr><td>MINIMUM BENDING RADIUS</td><td>1,6 m</td><td>AMBIENT TEMPERATURE RANGE</td><td colspan="2">-29°c +52°c</td></tr><tr><td>MAXIMUM TEMPORARY ELONGATION</td><td>2,50%</td><td>MINIMUM RESERVE BUOYANCY</td><td colspan="2">25% with accessories (MAX 700Kg)</td></tr><tr><td></td><td></td><td></td><td colspan="2"></td></tr></table> <div>ALL DATA ARE NOMINALLY CORRECT AND MAY VERY WITHOUT NOTICE</div> <div>WEIGHT :<div>400mm (16") x 9,1m (30') = 2996 Kg</div></div> <div>OUT DIAMETER :<div>Body= 745 mm End= 1111 mm Tanker End=1184 mm</div></div> <table><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td>A</td><td>03/10/2012</td><td>MODIFIED FROM OCIMF'91 TO GMPHOM2009</td><td>L.Fortuna</td><td>A.Siliquini</td></tr><tr><td>0</td><td>03/08/2011</td><td>FIRST ISSUE</td><td>L.Fortuna</td><td>A.Siliquini</td></tr><tr><td>REV</td><td>DATE</td><td>REVISION</td><td>PREPARED</td><td>REVIEWED</td></tr><tr><td>SCALE</td><td colspan="4">PROPERTY INFORMATION :</td></tr><tr><td>NOT TO SCALE</td><td colspan="4">THIS DOCUMENT AND DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR DISCLOSED</td></tr><tr><td>A3</td><td colspan="4">WHOLE OR IN PART TO ANYONE WITHOUT PERMISSION OF MANULI RUBBER INDUSTRIES spa</td></tr></table> <div><div><div>H3838 DF PU EB DASH POSEIDON 400mm (16") RWP 19bar<div>Double Carcass Tanker Rail Dumbel Floating<div>Extra Buoyancy Polyurethane Covered Hose<div>to GMPHOM spec<div>for Caspian Pipeline Consortium</div></div></div></div></div><div><div></div><div>TD. 01.0011/61</div></div></div></div>		RATED WORKING PRESSURE	19 bar	MAXIMUM PERMANENT ELONGATION	0,70%		TEST PRESSURE	28,5 bar	MAXIMUM AROMATICS CONTENT	UP TO 60%		MINIMUM BURST PRESSURE - 1st CARCASS	95 bar	MAXIMUM FLOW VELOCITY	UP TO 21 m/s		MINIMUM BURST PRESSURE - 2nd CARCASS	38 bar	FLUID TEMPERATURE RANGE	-20°c +82°c		MINIMUM BENDING RADIUS	1,6 m	AMBIENT TEMPERATURE RANGE	-29°c +52°c		MAXIMUM TEMPORARY ELONGATION	2,50%	MINIMUM RESERVE BUOYANCY	25% with accessories (MAX 700Kg)																						A	03/10/2012	MODIFIED FROM OCIMF'91 TO GMPHOM2009	L.Fortuna	A.Siliquini	0	03/08/2011	FIRST ISSUE	L.Fortuna	A.Siliquini	REV	DATE	REVISION	PREPARED	REVIEWED	SCALE	PROPERTY INFORMATION :				NOT TO SCALE	THIS DOCUMENT AND DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR DISCLOSED				A3	WHOLE OR IN PART TO ANYONE WITHOUT PERMISSION OF MANULI RUBBER INDUSTRIES spa			
RATED WORKING PRESSURE	19 bar	MAXIMUM PERMANENT ELONGATION	0,70%																																																																																		
TEST PRESSURE	28,5 bar	MAXIMUM AROMATICS CONTENT	UP TO 60%																																																																																		
MINIMUM BURST PRESSURE - 1st CARCASS	95 bar	MAXIMUM FLOW VELOCITY	UP TO 21 m/s																																																																																		
MINIMUM BURST PRESSURE - 2nd CARCASS	38 bar	FLUID TEMPERATURE RANGE	-20°c +82°c																																																																																		
MINIMUM BENDING RADIUS	1,6 m	AMBIENT TEMPERATURE RANGE	-29°c +52°c																																																																																		
MAXIMUM TEMPORARY ELONGATION	2,50%	MINIMUM RESERVE BUOYANCY	25% with accessories (MAX 700Kg)																																																																																		
A	03/10/2012	MODIFIED FROM OCIMF'91 TO GMPHOM2009	L.Fortuna	A.Siliquini																																																																																	
0	03/08/2011	FIRST ISSUE	L.Fortuna	A.Siliquini																																																																																	
REV	DATE	REVISION	PREPARED	REVIEWED																																																																																	
SCALE	PROPERTY INFORMATION :																																																																																				
NOT TO SCALE	THIS DOCUMENT AND DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR DISCLOSED																																																																																				
A3	WHOLE OR IN PART TO ANYONE WITHOUT PERMISSION OF MANULI RUBBER INDUSTRIES spa																																																																																				

<div><div><div>End</div><div>Body</div><div>Flange "B"</div><div>Flange "A"</div><div>Marking A</div><div>Marking C</div><div>Marking B</div></div></div> <td data-cs="5" data-kind="parent"><div>FITTINGS DATA</div><div>NIPPLES :<div>1)The nipple body to be fabricated from:<div>Alternative A: seamless steel pipe conforming to ASTM A-106 A or B or API-5L Grade A or B.</div><div>Alternative B: steel plate conforming to ASTM A-285 C or equivalent.</div><div>In both cases killed or semi-killed steel, with a maximum carbon content of 0.23 per cent.</div></div><div>2) All weld procedures and welders are to be qualified in accordance with ASME IX.</div><div>3) All welds, excluding band material welds, to be 100 per cent radiographed in accordance with EN 1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators. Interpretation of seam welds to be according to ASME VIII UW 51B</div><div>4) Band material to be equivalent to ASTM A-285 C, killed or semi-killed steel, with a maximum carbon content of 0.23 per cent. Band welds to be wet Magnetic Particle Inspected in accordance with ASME VIII, Appendix 6.</div><div>5) Nipple reference number to be stamped in zone 'X' at two places at 180°.</div></div><div>FLANGES :<div>6) The flange material to be in accordance with ASTM A-105 or equivalent normalised and with a maximum carbon content of 0.25 per cent. The flange rating to be in accordance with ASME B16.5.</div><div>The class to be specified by the purchaser.</div><div>7) The flange face to have a finish equivalent to that specified in EN 1759-1 over its complete area after galvanisation.</div><div>8) The flanges to be identifiable by a mill number stamped on the flange edge.</div></div><div>RATING :<div>"A" END : ASME 300 FF</div><div>"B" END : ASME 300 FF</div></div><div>FITTINGS :<div>9) The circumferential welds between nipple and flange to be 100 per cent radiographed. All weld procedures and welders to be qualified in accordance with ASME IX. The quality and definition of radiographs to be in accordance with EN1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators.</div><div>10)Interpretation of butt welds to be according to API 1104.</div><div>11)Fitting manufacturer serial number to be stamped on the back of the flange, zone 'Y' at two places at 180°.</div></div><div>COATING :<div>12)The exposed internal and external surfaces of the end fittings and flanges (including flange faces) to be protected by hot dip galvanisation in accordance with EN ISO 1461.</div><div>Surface Preparation: Grit blasting to SA 2½, followed by pickling in acid. Coating: Minimum average coating weight 610 g/m² (equivalent to 85 µm thickness).</div><div>Zinc Composition: Bath impurities to comply with the limits specified in EN ISO 1461. Appearance: Coating shall be visually free from nodules, blisters, roughness, sharp points and uncoated areas.</div></div></td>	<div>FITTINGS DATA</div> <div>NIPPLES :<div>1)The nipple body to be fabricated from:<div>Alternative A: seamless steel pipe conforming to ASTM A-106 A or B or API-5L Grade A or B.</div><div>Alternative B: steel plate conforming to ASTM A-285 C or equivalent.</div><div>In both cases killed or semi-killed steel, with a maximum carbon content of 0.23 per cent.</div></div><div>2) All weld procedures and welders are to be qualified in accordance with ASME IX.</div><div>3) All welds, excluding band material welds, to be 100 per cent radiographed in accordance with EN 1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators. Interpretation of seam welds to be according to ASME VIII UW 51B</div><div>4) Band material to be equivalent to ASTM A-285 C, killed or semi-killed steel, with a maximum carbon content of 0.23 per cent. Band welds to be wet Magnetic Particle Inspected in accordance with ASME VIII, Appendix 6.</div><div>5) Nipple reference number to be stamped in zone 'X' at two places at 180°.</div></div> <div>FLANGES :<div>6) The flange material to be in accordance with ASTM A-105 or equivalent normalised and with a maximum carbon content of 0.25 per cent. The flange rating to be in accordance with ASME B16.5.</div><div>The class to be specified by the purchaser.</div><div>7) The flange face to have a finish equivalent to that specified in EN 1759-1 over its complete area after galvanisation.</div><div>8) The flanges to be identifiable by a mill number stamped on the flange edge.</div></div> <div>RATING :<div>"A" END : ASME 300 FF</div><div>"B" END : ASME 300 FF</div></div> <div>FITTINGS :<div>9) The circumferential welds between nipple and flange to be 100 per cent radiographed. All weld procedures and welders to be qualified in accordance with ASME IX. The quality and definition of radiographs to be in accordance with EN1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators.</div><div>10)Interpretation of butt welds to be according to API 1104.</div><div>11)Fitting manufacturer serial number to be stamped on the back of the flange, zone 'Y' at two places at 180°.</div></div> <div>COATING :<div>12)The exposed internal and external surfaces of the end fittings and flanges (including flange faces) to be protected by hot dip galvanisation in accordance with EN ISO 1461.</div><div>Surface Preparation: Grit blasting to SA 2½, followed by pickling in acid. Coating: Minimum average coating weight 610 g/m² (equivalent to 85 µm thickness).</div><div>Zinc Composition: Bath impurities to comply with the limits specified in EN ISO 1461. Appearance: Coating shall be visually free from nodules, blisters, roughness, sharp points and uncoated areas.</div></div>
---	--

End

Body

Reinf. End

Flange "B"

Flange "A"

TAPERED REINFORCEMENT

MANULI

POSEIDON

01 01 001

Marking A

Marking C

Marking B

FOR CUSTOMER 'S APPROVAL

GENERAL INFORMATION

DESCRIPTION :

1st CARCASS : *Flexible rubber structure composed of smooth oil resistant extruded NBR main lining, adequate number of steel wire cords and steel wire helix, textile reinforcements & cover bonded together. For suction and discharge of crude oil and liquid petroleum products for Offshore Mooring.*

2nd CARCASS : *Additional carcass with oil retention channel, smooth oil and fuel resistant NBR lining, adequate number of reinforcements & abrasion resistant chloroprene rubber cover bonded together and vulcanized in a uniform manner. The 2nd carcass is designed to contain any product which may escape from the 1st carcass*

FITTING : *Built-in during hose construction*

ELECTRICALLY : *Discontinuous*

FAD : *Failure Alert Device "Mechanical System"*

MATERIAL :

LINING : *Smooth, oil resistant extruded (NBR)*

COVER : *Black rubber, high resistant to abrasion, oil, sunlight and seawater with longitudinal white stripe.*

WIRE HELIX : *One helical wire embedded in syntetic rubber*

REINFORCED CORD : *Steel and textile cords skimmed with rubber*

REFERENCE :

NORM : *Tested according to GMPHOM 2009*

MARKING :

MARKING "A" ON EACH END AT 180 ° :

MANUFACTURER: ANCHOR + "Manuli"

SPECIFICATION: GMPHOM 2009

DIAMETER: ID **600** mm

WORKING PRESSURE: RWP **19** bar

SERIAL NUMBER: mm yy

MONTH / YEAR:

CARCASS TYPE: DOUBLE CARCASS HOSE

HOSE TYPE: **H3006 UF DASH**

HOSE NAME: **POSEIDON**

TEMPORANEY ELONGATION : T.E. %

ELECTRICALLY: ELECTRICALLY DISCONTINUOUS

MARKING "B" ON EACH END AT 180 ° :

Serial number "mm-YY-Progressive nr. "welded on the rim of the flange

MARKING "C" ON EACH END AT 180 ° :

On the hose center : MANULI logo

FITTINGS DATA

NIPPLES :

1)The nipple body to be fabricated from:

Alternative A: seamless steel pipe conforming to ASTM A-106 A or B or API-5L Grade A or B.

Alternative B: steel plate conforming to ASTM A-285 C or equivalent.

In both cases killed or semi-killed steel, with a maximum carbon content of 0.23 per cent.

2) All weld procedures and welders are to be qualified in accordance with ASME IX.

3) All welds, excluding band material welds, to be 100 per cent radiographed in accordance with EN 1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators. Interpretation of seam welds to be according to ASME VIII UW 51B

4) Band material to be equivalent to ASTM A-285 C, killed or semi-killed steel, with a maximum carbon content of 0.23 per cent. Band welds to be wet Magnetic Particle Inspected in accordance with ASME VIII, Appendix 6.

5) Nipple reference number to be stamped in zone 'X' at two places at 180°.

FLANGES :

6) The flange material to be in accordance with ASTM A-105 or equivalent normalised and with a maximum carbon content of 0.25 per cent. The flange rating to be in accordance with ASME B16.5.

The class to be specified by the purchaser.

7) The flange face to have a finish equivalent to that specified in EN 1759-1 over its complete area after galvanisation.

8) The flanges to be identifiable by a mill number stamped on the flange edge.

RATING :

"A" END : ASME 300 FF

"B" END : ASME 300 FF

FITTINGS :

9) The circumferential welds between nipple and flange to be 100 per cent radiographed. All weld procedures and welders to be qualified in accordance with ASME IX. The quality and definition of radiographs to be in accordance with EN1435, with the exception that radiographs will show a density of 2 to 3, geometric unsharpness not more than 0.4mm and a sensitivity of 1.5 per cent of wall thickness using EN 462-1 wire type image quality indicators.

10)Interpretation of butt welds to be according to API 1104.

11)Fitting manufacturer serial number to be stamped on the back of the flange, zone 'Y' at two places at 180°.

COATING :

12)The exposed internal and external surfaces of the end fittings and flanges (including flange faces) to be protected by hot dip galvanisation in accordance with EN ISO 1461.

Surface Preparation: Grit blasting to SA 2½, followed by pickling in acid. Coating: Minimum average coating weight 610 g/m² (equivalent to 85 µm thickness).

Zinc Composition: Bath impurities to comply with the limits specified in EN ISO 1461. Appearance: Coating shall be visually free from nodules, blisters, roughness, sharp points and uncoated areas.

HOSE PERFORMANCE DATA

RATED WORKING PRESSURE	19 bar	MAXIMUM PERMANENT ELONGATION	0,70%
TEST PRESSURE	28,5 bar	MAXIMUM AROMATICS CONTENT	UP TO 60%
MINIMUM BURST PRESSURE - 1st CARCASS	95 bar	MAXIMUM FLOW VELOCITY	UP TO 21 m/s
MINIMUM BURST PRESSURE - 2nd CARCASS	38 bar	FLUID TEMPERATURE RANGE	-20℃ +82℃
MINIMUM BENDING RADIUS	2,4 m	AMBIENT TEMPERATURE RANGE	-29℃ +52℃
MAXIMUM TEMPORARY ELONGATION	2,50%	MINIMUM RESERVE BUOYANCY	N.A.
SUBMERGED WEIGHT FULL OF WATER	2555 Kg	SUBMERGED WEIGHT FULL OF OIL	2188 Kg

ALL DATA ARE NOMINALLY CORRECT AND MAY VERY WITHOUT NOTICE

WEIGHT :

600mm (24") x 10,7m (35') =4774 Kg

OUT DIAMETER :

Body=838mm End=860mm Reinf.End=860mm

B	05/12/2012	GENERAL UPDATED	L.Fortuna	A.Siliquini	G. Marucci
A	03/10/2012	MODIFIED FROM OCIMF'91 TO GMPHOM2009	L.Fortuna	A.Siliquini	
0	03/08/2011	FIRST ISSUE	L.Fortuna	A.Siliquini	
REV	DATE	REVISION	PREPARED	REVIEWED	APPROVED
SCALE	PROPERTY INFORMATION :				
NOT TO SCALE	THIS DOCUMENT AND DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR				
A3	DISCLOSED WHOLE OR IN PART TO ANYONE WITHOUT PERMISSION OF MANULI RUBBER INDUSTRIES spa				

H3006 UF DASH POSEIDON 600mm (24") RWP 19bar

Double Carcass One End Reinforced

Submarine Hose

to GMPHOM 2009 spec

for Caspian Pipeline Consortium

manuli®

RUBBER INDUSTRIES

Oil & Marine

TD. 01.0011/62