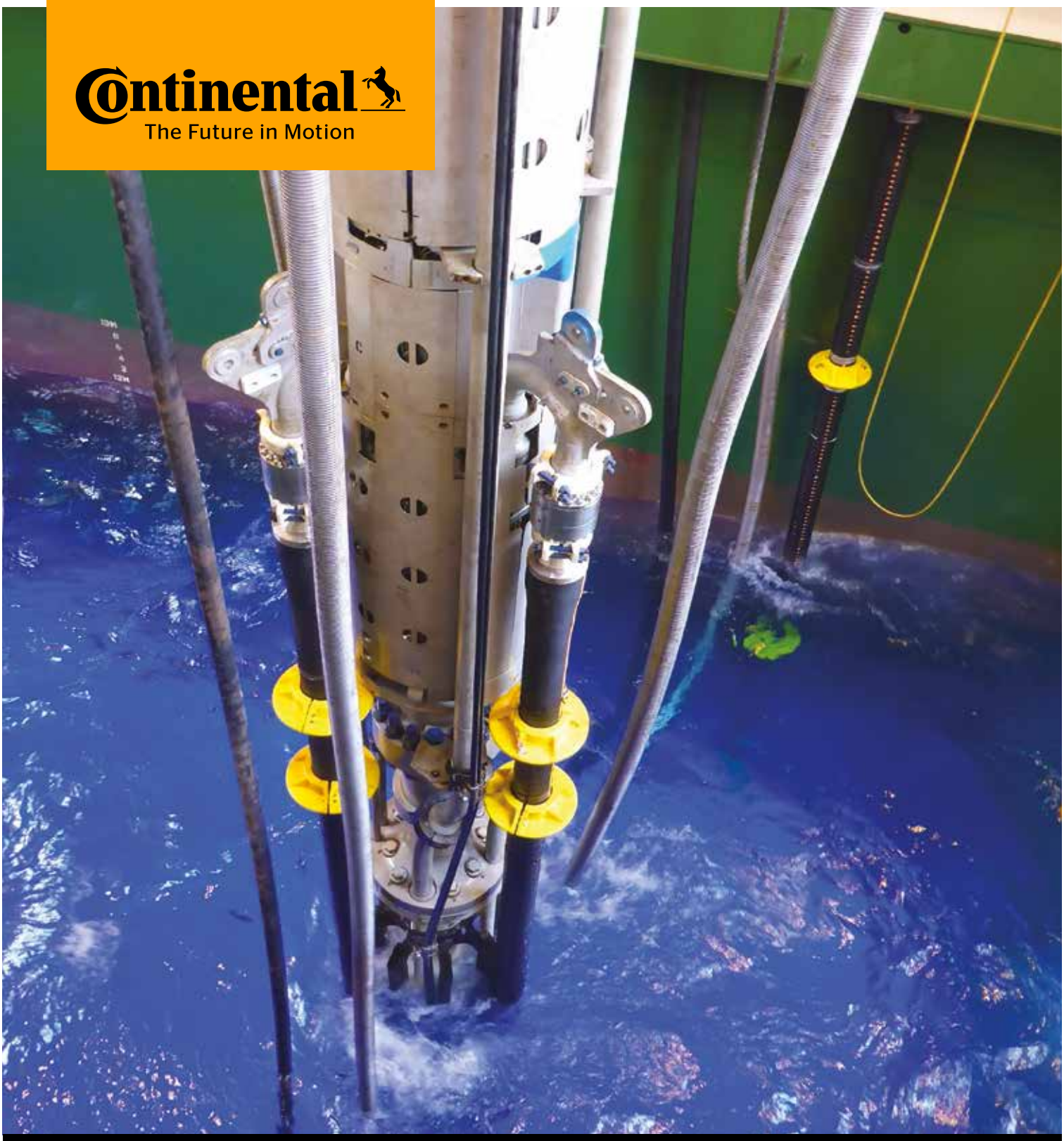
Continental
The Future in Motion



High Pressure Flexible Lines for Drilling & Production

High Performance Flexible Hoses

Continental AG, is a global leader in the design, manufacture and supply of flexible lines. We have over 50 years of experience in the field of bonded flexible pipes, and we are continuously striving to extend the performance boundaries of our products in order to meet the ever more challenging demands of our global customers.

All of our high performance hose products are certified to all relevant API standards for high pressure rubber hoses and flexible pipes - API 7K, API 16C and API 17K.

Using top quality raw materials, sophisticated process control and the very latest R&D systems and processes, our expert teams are able to draw on a comprehensive knowledge base,ranging from material science, mathematics, and physics to advanced engineering and work together with our customers to offer viable solutions for the most demanding applications.

Our hose designs assure long service life and outstanding operational and environmental safety.

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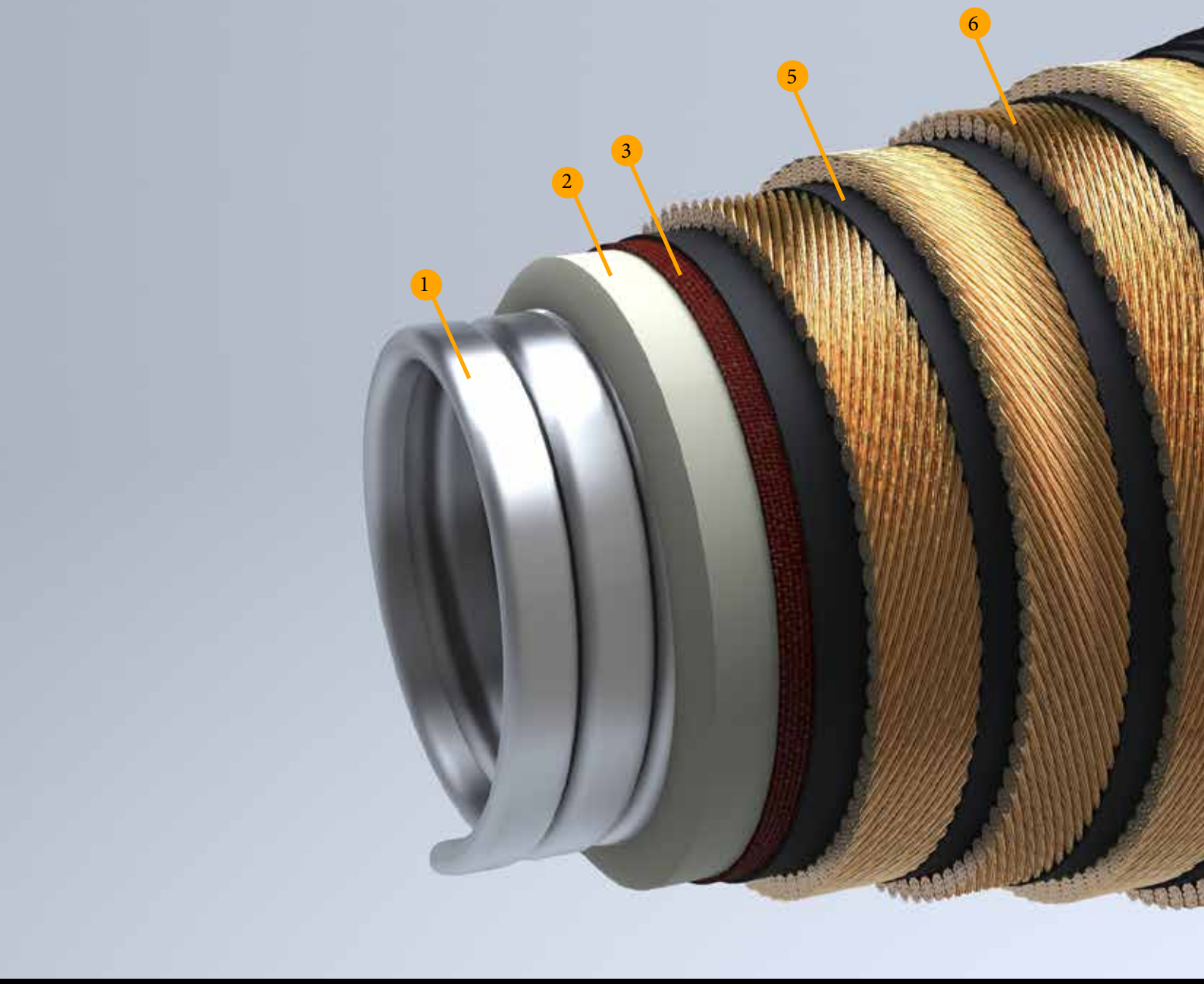
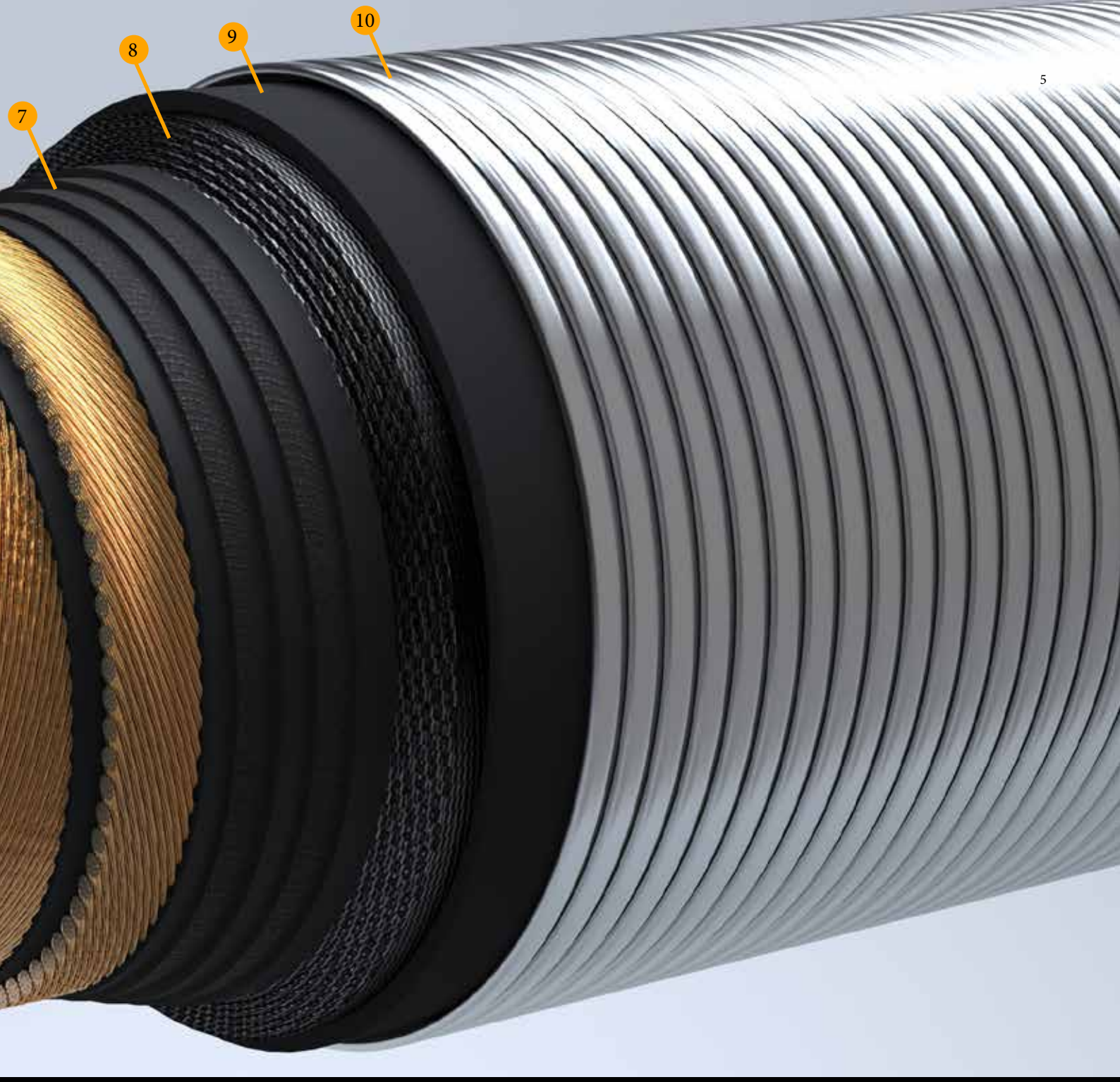


General construction
of a high pressure bonded hose

The flexible hose lines are a bonded construction comprising steel and elastomeric materials. The principal characteristic of bonded construction is the build-up of individual layers in the flexible hose wall which are then combined into one unit through vulcanisation. Hose assemblies are manufactured either as a single bonded unit to specified lengths where the couplings are an integral part of the hose, or they can be mechanically assembled to the cured hose.

1 Stainless steel interlock stripwound tube
Protects the polymer lining from mechanical damage, prevents blistering in case of high pressure gas service and decompression with vacuum service, supports the wall of the flexible hose and facilitates pigging. The material can be AISI 316L or 254 SMO grade stainless steel, depending on the conveyed medium.

2 Polymer lining
Fluid barrier of the flexible line. Protects the hose construction from corrosive and abrasive effects of the conveyed medium.



The thickness of lining depends on the internal pressure, the inside diameter and the conveyed medium. The lining material is selected to withstand chemical and heat effects of crude oil, seawater, gases, hydraulic fluid or whatever substance is conveyed through the hose.

3 Textile plies
To distribute the forces of internal pressure.

4 Stiffening spiral (not shown in the figure)
To protect the hose against collapse under axial pulling force and/or as a result of external pressure. Prevents kinking even in sharp bends.

5 Elastomeric cushion plies
To ensure adhesive bonding between different plies.

6 High strength steel cable reinforcements
These are the most important load-bearing elements, they determine internal pressure resistance. The cables are either zinc or brass coated to provide exceptional corrosion resistance.

7 Gas leading plies
To allow diffused gases to migrate to venting points.

8 Fire resistant plies
Protects the hose in case of exposure to flame at 704°C (1300°F) for at least 30 minutes.

9 Elastomeric cover
Protect the flexible hose line from impact, abrasion, weather, seawater, oil, etc.

10 Outer stainless steel stripwound protection
Protect the hose against external mechanical damage, material AISI 316L.

Tailor-made Solutions
engineering services

Finite Element Analysis
Our in-house design software has been improved and refined over many years and is used in conjunction with the most recent finite element analysis (FEA) systems to handle even the most difficult technical demands.

Different FEA solutions allow you to adapt the configuration of your system to a given application and to ensure safe and reliable operation under all conditions:

- Static, quasi-static hose length analysis
  Determines the optimal hose length whilst allowing for any surrounding objects that may affect the hose routing.
- Hydrodynamic analysis
  Used to simulate the dynamic behaviour of a given configuration when exposed to the expected environmental conditions.
- Survival analysis
  Based on the hydrodynamic analysis, the suitability of the hose components is checked against the harshest environmental conditions.
- Fatigue analysis
  Based on the hydrodynamic analysis, the minimum design life of a hose can be calculated by accumulating the fatigue of the load bearing metal components.

By their nature, bonded flexible pipes offer a high degree of design freedom: their properties can be designed and adjusted according to the needs of your system – based on the results of the FEA.

Built-in neck reinforcement
All hoses with bonded couplings are built with neck reinforcement, but in strong dynamic configurations a custom designed extra neck reinforcement might be necessary to avoid overbending of the hose. The local bending stiffness can be increased to several times of that of the hose body.

Variable bending stiffness
Upon request the bending stiffness of the complete hose body can be increased by a factor of 10 or more. In some cases a reduction in bend stiffness is also possible.

Swivels
If the hose is subject to severe twist (e.g. in the moonpool), swivels may be required.

Heat traced hoses
For extreme cold conditions, or if fluid might freeze in the hose, a self-regulating electric heating cable can be incorporated into the hose body.

Tauro™Fit Preformed hoses
The increasing specifications of today's drilling rigs and floating production facilities result in more and more equipment being packed in to the available space. Installation of a conventional straight rubber hose in a very restricted space can impose a considerable bending moment to keep the hose in the desired configuration.

Such extreme bending moments can in turn transfer high end loads to the coupling and the connected rigid piping and possibly other equipment. These end loads may have a detrimental effect on the service life of connected equipment, such as in-line swivels. For such demanding applications, Continental has developed a range of pre-formed flexible hoses to make installation easier, reduce system loads and extend service life. For more information, see Flexible Tauro™Fit Choke & Kill Line for subsea BOPs and TauroFit Preformed Production Line.

External protection

Several types of external protection are available depending on the application, such as:

1 Outer wrap

Fully interlocking stainless steel outer wrap is the most widely used external protection, able to absorb impacts and friction and thus providing additional mechanical protection to the hose body.

2 Heavy duty moonpool protection

A stainless steel helix fully embedded in rubber, recommended for the harshest conditions. Exceptional impact absorption and abrasion resistance.

3 Bumpers

If the exact location of impact between the hose and its surroundings is known (e.g. in the moonpool), a plastic bumper is advised to absorb the impact energy.

4 Plastic spiral

Helps to protect the hose cover when dragging on the rig floor during handling and installation. Also suitable for static applications.

High Pressure Hoses For Drilling & Well Service Applications

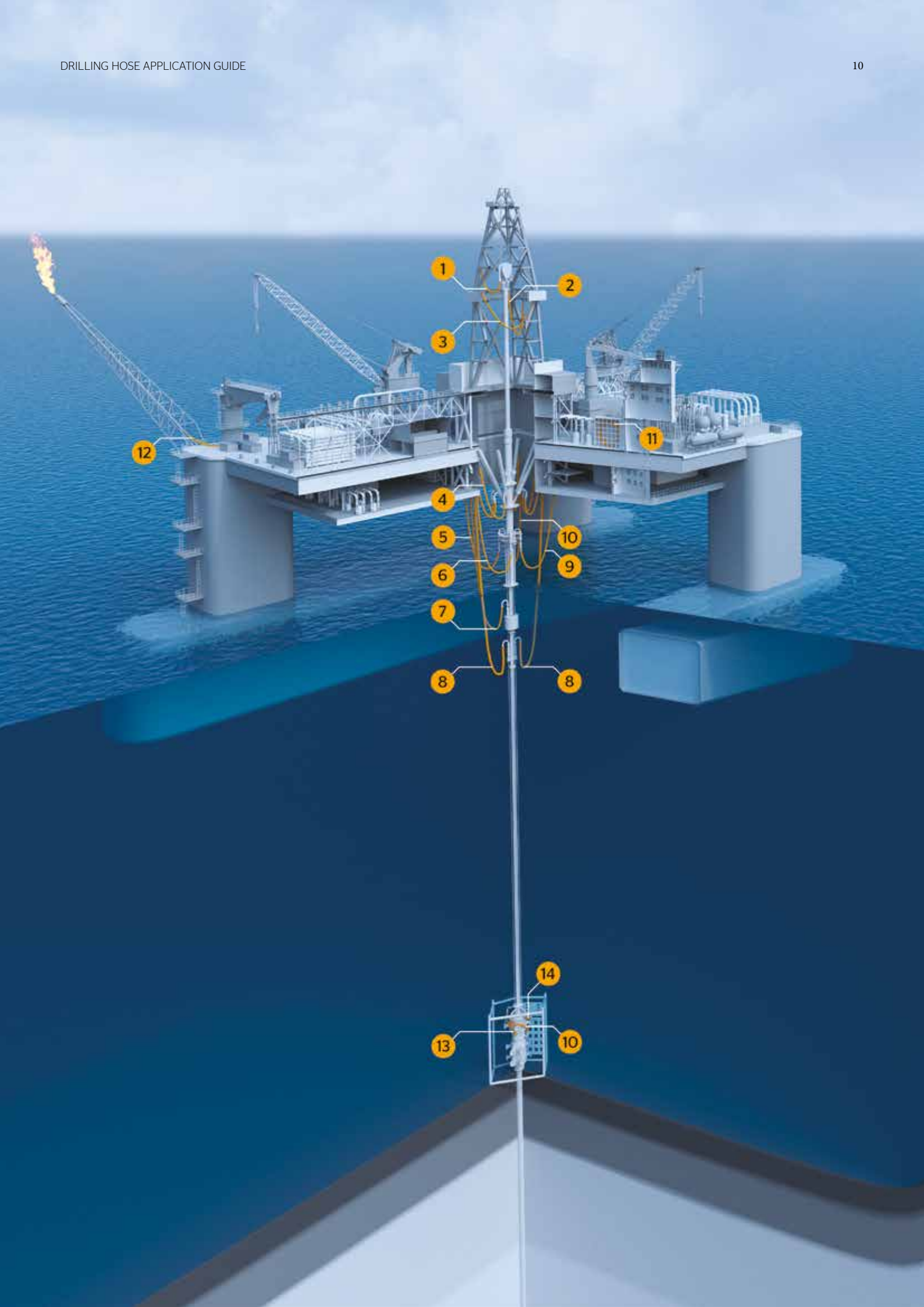
Bonded & Swaged Couplings

Our bonded couplings and built-in bend stiffeners are the strongest parts of hoses produced by Continental. Our company was the first to patent a coupling where the bonding strength between the coupling and hose body increases in proportion of the internal pressure.

The patented bonded couplings, developed in-house, the special hose construction with integral neck reinforcement and the fire resistant cover layer are all unique features which contribute to a high degree of chemical resistance, fatigue resistance, heat insulation and result in a light compact hose construction with excellent flexibility and low bending radius.

Continental also supplies Rotary and Vibrator hoses with swaged couplings in accordance with API Spec. 7K (FSL1 - FSL2) on demand delivery.

Title Name	Bonded coupling	Swaged coupling
Technology	All reinforcement cables are adhesively bonded to the coupling body	Only outer reinforcement layer, (and in some cases the innermost reinforcement layer) is directly in contact with the coupling
Bore type	Full bore, no flow restriction	Never full bore, there is always a flow restriction. In Choke Lines it may lead to dangerous erosion in case of a kick
Sealing mechanism	Chemical and mechanical bond between metal and rubber	Based on pressure buildup when the coupling is mounted, subject to stress relaxation at elevated temperatures
Field experience	50+ years	Limited, relatively new technology
Temperature limits	Suitable for high fluid temperatures	Limited fluid temperatures
Pressure limits	Meets high pressure rating requirements, up to 20,000 psi (1380 bar) working pressure	Limited pressure capability, max. 10 000 psi (690 bar) working pressure
High frequency pulsations	Always suitable	Not suitable, unless properly designed
Coupling rigid length	Shorter coupling	Longer coupling
Neck reinforcement	Built-in neck reinforcement, with the ability to customize	Does not have neck reinforcement, which might lead to shortened service life
Lead time	Generally longer lead time, but patented Continental post assembling technology available in dedicated workshops significantly cuts lead time	Generally shorter lead time
Service life	Generally longer service life	Generally shorter service life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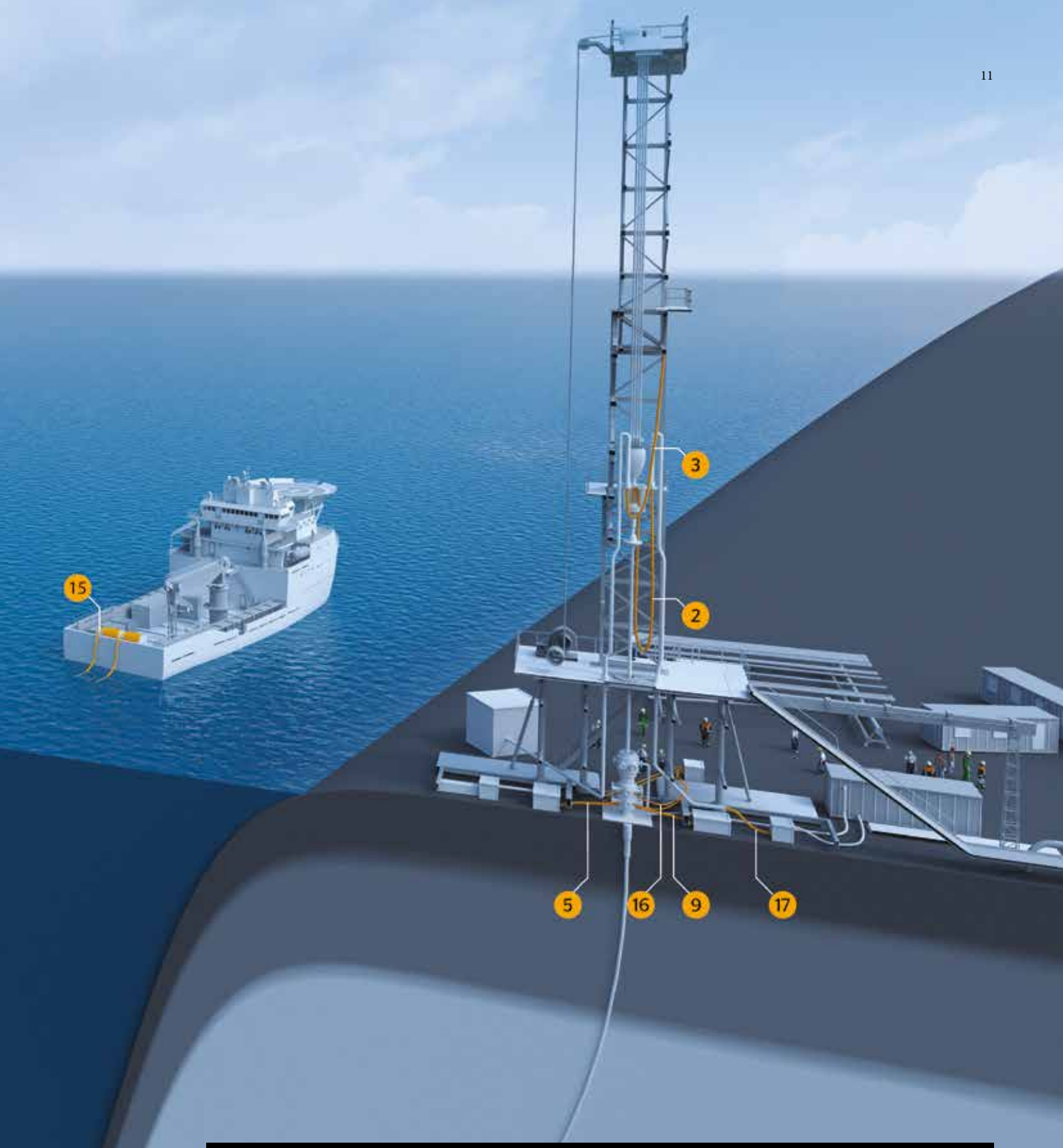


1 Drill string compensator hose	7 MPD hose - Bleed-off line	13 Flexible TauroFit choke line for subsea BOP's
2 Rotary hose	8 MPD hose - Mud return line	14 Flexible TauroFit kill line for subsea BOP's
3 Cementing hose	9 Flexible choke line	15 Well stimulation / Acidizing hose
4 Riser tensioner hose	10 Hydraulic conduit hose	16 Blowout preventer control hose
5 Flexible kill line	11 Well test hose	17 Vibrator hose
6 Mud booster hose	12 Burner / Flare boom hose	

FSL Levels for High Pressure Mud & Cement Hoses and Flexible Choke & Kill Lines

The API standards 7K (mud and cement hoses) and API 16C (flexible choke and kill lines) define Flexible Specification Levels (or FSL). For the safety of drilling operations, it is imperative for the purchaser and operator to choose the proper FSL level.

FSL levels for mud and cement hoses in API 7K

FSL 0 - for cement hoses only
To meet the FSL 0 requirements, a deformation test under pressure, an ambient and low temperature bending test need to be performed, no pressure pulsation prototype test is required.

FSL 1 - for rotary, vibrator, and jumper hoses in normal service conditions
To meet the FSL 1 requirements, in addition to FSL 0 prototype tests a low frequency pressure pulsation prototype test is required - 1000 pressure cycles (max. 5 min/cycle) at maximum operating temperature.

FSL 2 - for rotary, vibrator, and jumper hoses that are likely to see high frequency pressure pulsations in operation, as in directional drilling
To meet the FSL 2 requirements, in addition to FSL 0 prototype tests a high frequency pressure pulsation prototype test is required - 10 000 pressure cycles (max. 10 sec/cycle) at maximum operating temperature.

For further information on API 7K FSL levels and prototype tests, see API 7K 6th Edition Section 9.7.3.2. and 9.7.10.

FSL levels for flexible choke and kill lines in API 16C

FSL 0 - To meet FSL 0 requirements a hydrostatic internal pressure test, a bending flexibility test, a burst test and an exposure test shall be passed. In the gas exposure test 3 rapid decompressions are followed by internal diameter check, and a hold period of 7 days at design pressure and maximum operating temperature. Then after 30 days hold at design pressure and ambient temperature, the hose performance is validated by a 30 min pressure test at 1.5 times the design pressure.

FSL 1 - To meet FSL 1 requirements, in addition to FSL 0 prototype tests a fire test is necessary at design pressure and 704°C (1300°F) external temperature for 30 min without leakage.

FSL 2 - To meet FSL 2 requirements, in addition to FSL 0 prototype tests a high temperature exposure test must be performed. The test reproduces a high temperature kick situation with the hose heated slowly to 177°C (350F) internally at design pressure, where it has to survive one hour without leakage. After that the internal temperature is raised until failure of the line.

FSL 3 - To meet FSL 3 requirements, in addition to FSL 2 prototype tests a fire test is necessary at design pressure and 704°C (1300F) external temperature for 30 min without leakage.

For further information on API 16C FSL levels and prototype tests, see API 16C 2nd Edition Section 10.8.10. and B.12.

General Information
about products for drilling applications

- Multiple liner materials are available for different applications: NBR, NBR/CR, TauroCool, HNBR, PA and TauroFlon™ . For chemical compatibility comparison see page 46.
- Minimum Bending Radius (MBR) is with reference to the centre-line of the hose
- Maximum recommended flow velocities: 20 m/s for dry gas
15 m/s for liquid
8 m/s for gaseous liquid
- Fire rating available at 1300 °F (704°C) for 30 minutes on request for all hoses with bonded couplings. This complies with both Lloyd's Register OD 1000/499 and API 16C requirements
- Additional external protection available upon request
- Prod. Length Tolerance Up to 6.4 m hose length +/- 64 mm
Above 6.4 m hose length +/- 1 %

Safety Clamp and Lifting Collar Fitting Instructions

Each hose has a location mark on the outer cover at each end with the text "ATTACH SAFETY CLAMP HERE". This band indicates the location for the safety clamps. The safety clamps should be positioned with one edge towards the middle of the hose (i.e. away from the coupling). Once correctly positioned, the safety clamp should be fastened in position with the nuts and bolts.

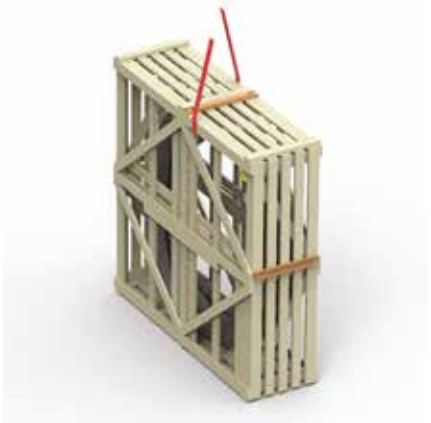
The lifting equipment supplied with the hoses, includes a two-part lifting device at each hose end. These lifting devices, called element C's, are supplied loose and not pre-assembled to the hose due to packaging limitations and safety reasons. The normal procedure for handling and lifting the hose involves securing the lifting collar around the element C. The hose is then lifted by attaching the lifting line to the lifting collar. After installation, the lifting collar and element C can be left on the hose together or both removed if preferred. All lifting collars are supplied with SWL certification.

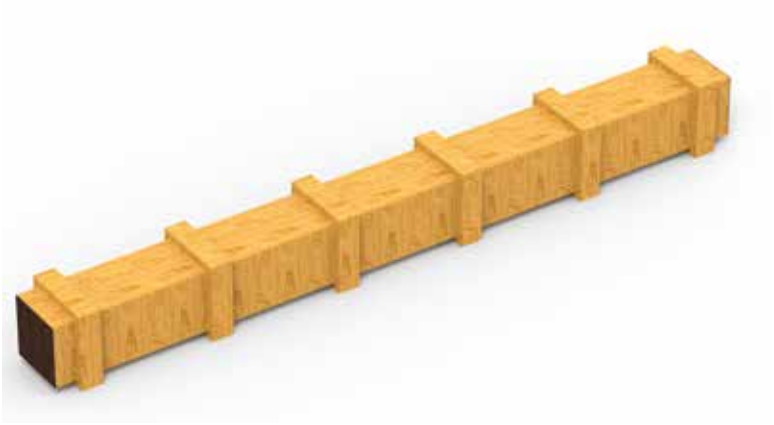
Transportation

We transport our products mainly on road, by rail or by ship to their destination, air freight is also possible. Method of packaging depending on the diameter and length of hose can be as follows:

- Short units: in straight position: on pallets or in wooden crates
- Long units: reeled onto drum, on pallets or in wooden crates

Note: For more detailed information please request a copy of the Continental User Guide for High Pressure Flexible Lines.





Rotary & Vibrator Hose
bonded coupling

Standard

API Spec. 7K FSL 1 - FSL 2

Construction

Bore type	full flow, smooth bore
Liner material	NBR or NBR/CR
Operating temperature	-25°C to +100°C (-13°F to 212°F) for NBR -30°C to +82°C (-22°F to 180°F) for NBR/CR
Max. available length	60m (200ft)

Features & Comments

- See Underbalanced Drilling Hoses for Gas, Air and Foam drilling
- See Managed Pressure Drilling Hoses for Managed Pressure Drilling (MPD) and Dual Gradient Drilling (DGD)

Technical Data

Inside Diameter		Rated Working Pressure		Test Pressure		API Grade	Safety Factor	Outer Diameter		MBR (operation)		Weight	
mm	in	bar	psi	bar	psi		(WP)	mm	in	m	ft	kg/m	lb/ft
51	2.0	276	4,000	414	6,000	C	2.5	104	4.1	0.7	2.3	15	10
		345	5,000	517	7,500	D	2.5	104	4.1	0.7	2.3	15	10
64	2.5	276	4,000	414	6,000	C	2.5	111	4.4	1.7	5.6	15	10
		345	5,000	517	7,500	D	2.5	111	4.4	0.7	2.3	15	10
		517	7,500	776	11,250	E	2.5	136	5.4	0.8	2.6	31	21
76	3.0	276	4,000	414	6,000	C	2.5	126	5	0.8	2.6	18	12
		345	5,000	517	7,500	D	2.5	126	5	0.8	2.6	18	12
		517	7,500	776	11,250	E	2.5	148	5.8	1.1	3.6	34	23
89	3.5	276	4,000	414	6,000	C	2.5	140	5.5	0.9	3.0	21	14
		345	5,000	517	7,500	D	2.5	140	5.5	0.9	3.0	21	14
		517	7,500	776	11,250	E	2.5	162	6.4	1.3	4.3	39	26
102	4.0	276	4,000	414	6,000	C	2.5	144	5.7	0.9	3.0	21	14
		345	5,000	517	7,500	D	2.5	144	5.7	0.9	3.0	21	14
		517	7,500	776	11,250	E	2.5	174	6.9	1.4	4.6	42	28
127	5.0	345	5,000	517	7,500	D	2.5	213	8.4	1.5	4.9	67	45
		517	7,500	776	11,250	E	2.5	213	8.4	1.5	4.9	67	45
152	6.0	345	5,000	517	7,500	D	2.25	224	8.8	1.7	5.6	57	38*
		517	7,500	776	11,250	E	2.25	248	9.8	1.8	5.9	93	63*

* API 7K not labelled

Rotary & Vibrator Hose
swaged coupling

Standard

API 7K Spec. FSL 1 - FSL 2

Construction

Bore type	not full flow, smooth bore
Liner material	NBR or CR
Operating temperature	-30°C to +82°C (-22°F to 180°F)
Max. available length	40m (131ft)

Features & Comments

- Branded Taurus Emergé

Technical Data

Inside Diameter		Rated Working Pressure		Test Pressure		API Grade	Safety Factor	Outer Diameter		MBR (operation)		Weight	
mm	in	bar	psi	bar	psi		(WP)	mm	in	m	ft	kg/m	lb/ft
76	3.0	345	5,000	517	7,500	D	2.5	126	5.0	0.8	2.6	18	12
89	3.5	345	5,000	517	7,500	D	2.5	140	5.5	0.9	3.0	21	14
101.6	4.0	345	5,000	517	7,500	D	2.5	149	5.9	1.0	3.3	21	14*

* Limited to FSL 1 and Operating temperature -30°C to +100°C (-22°F to 212°F)

Rotary & Vibrator Hose

for high temperature drilling & sour service

Standard

API 7K Spec. FSL 1 - FSL 2

Construction

Bore type	full flow, smooth bore
Liner material	H_2S resistant HNBR
Operating temperature	-30°C to +121°C (-22°F to 250°F)
Max. available length	60m (200ft)

Features & Comments

- Designed for high working temperature and sour service mud delivery
- The hose is capable of handling 20% H_2S (HydrogenSulphide) for 1 hour at 121°C at rated working pressure
- See Underbalanced Drilling Hoses for Gas, Air and Foam drilling
- See Managed Pressure Drilling Hoses for Managed Pressure Drilling (MPD) and Dual Gradient Drilling (DGD)

Technical Data

Inside Diameter		Rated Working Pressure		Test Pressure		API Grade	Safety Factor	Outer Diameter		MBR (operation)		Weight		
mm	in	bar	psi	bar	psi		(WP)	mm	in	m	ft	kg/m	lb/ft	
51	2.0	276	4,000	414	6,000	C	2.5	104	4.1	0.7	2.3	15	10	
		345	5,000	517	7,500	D	2.5	104	4.1	0.7	2.3	15	10	
64	2.5	276	4,000	414	6,000	C	2.5	111	4.4	1.7	5.6	15	10	
		345	5,000	517	7,500	D	2.5	111	4.4	0.7	2.3	15	10	
		517	7,500	776	11,250	E	2.5	136	5.4	0.8	2.6	31	21	
76	3.0	276	4,000	414	6,000	C	2.5	126	5.0	0.8	2.6	18	12	
		345	5,000	517	7,500	D	2.5	126	5.0	0.8	2.6	18	12	
		517	7,500	776	11,250	E	2.5	148	5.8	1.1	3.6	34	23	
89	3.5	276	4,000	414	6,000	C	2.5	140	5.5	0.9	3.0	21	14	
		345	5,000	517	7,500	D	2.5	140	5.5	0.9	3.0	21	14	
		517	7,500	776	11,250	E	2.5	162	6.4	1.3	4.3	39	26	
102	4.0	276	4,000	414	6,000	C	2.5	153	6.0	1.0	3.3	24	16	
		345	5,000	517	7,500	D	2.5	153	6.0	1.0	3.3	24	16	
		517	7,500	776	11,250	E	2.5	174	6.9	1.4	4.6	42	28	
127	5.0	345	5,000	517	7,500	D	2.5	213	8.4	1.5	4.9	67	45	
		517	7,500	776	11,250	E	2.5	213	8.4	1.5	4.9	67	45	
152	6.0	345	5,000	517	7,500	D	2.25	224	8.8	1.7	5.6	57	38	*
		517	7,500	776	11,250	E	2.25	248	9.8	1.8	5.9	93	63	*

* API 7K not labelled

Tauro™Cool Rotary & Vibrator Hose
for Arctic drilling

Standard

API Spec. 7K FSL 1 - FSL 2

Construction

Bore type	full flow, smooth bore
Liner material	Tauro™Cool
Operating temperature	-40°C to +82°C (-40°F to 180°F)
Max. available length	60m (200ft)

Features & Comments

- Designed for extreme low working temperature mud delivery
- Additional heat tracing is available on request
- Larger sizes are available without API label
- See Underbalanced Drilling Hoses for Gas, Air and Foam drilling
- See Managed Pressure Drilling Hoses for Managed Pressure Drilling (MPD) and Dual Gradient Drilling (DGD)

Technical Data

Inside Diameter		Rated Working Pressure		Test Pressure		API Grade	Safety Factor	Outer Diameter		MBR (operation)		Weight	
mm	in	bar	psi	bar	psi		(WP)	mm	in	m	ft	kg/m	lb/ft
51	2.0	276	4,000	414	6,000	C	2.5	103	4.1	0.7	2.3	14	9
		345	5,000	517	7,500	D	2.5	103	4.1	0.7	2.3	14	9
64	2.5	276	4,000	414	6,000	C	2.5	111	4.4	1.7	5.6	15	10
		345	5,000	517	7,500	D	2.5	111	4.4	0.7	2.3	15	10
		517	7,500	776	11,250	E	2.5	136	5.4	0.8	2.6	31	21
76	3.0	276	4,000	414	6,000	C	2.5	126	5.0	0.8	2.6	18	12
		345	5,000	517	7,500	D	2.5	126	5.0	0.8	2.6	18	12
		517	7,500	776	11,250	E	2.5	148	5.8	1.1	3.6	34	23
89	3.5	276	4,000	414	6,000	C	2.5	140	5.5	0.9	3.0	21	14
		345	5,000	517	7,500	D	2.5	140	5.5	0.9	3.0	21	14
		517	7,500	776	11,250	E	2.5	162	6.4	1.3	4.3	39	26
102	4.0	276	4,000	414	6,000	C	2.5	150	5.9	1.0	3.3	22	15
		345	5,000	517	7,500	D	2.5	150	5.9	1.0	3.3	22	15
		517	7,500	776	11,250	E	2.5	174	6.9	1.4	4.6	42	28

Underbalanced Drilling Hose

Standard

API Spec. 7K FSL 1

Construction

Bore type	full flow, smooth bore
Liner material	H_2S resistant PA
Operating temperature	-20°C to +82°C (-4°F to 180°F)
Max. available length	60m (200ft)

Features & Comments

- Used for gas, air and foam drilling
- Further constructions are available on request
- Not suitable for operations where the hoses are likely to be exposed to well bore effluents. For such applications, see Managed Pressure Drilling Hoses

Technical Data

Inside Diameter		Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (operation)		Weight	
mm	in	bar	psi	bar	psi	(WP)	mm	in	m	ft	kg/m	lb/ft
51	2.0	276	4,000	414	6,000	2.5	94	3.7	0.9	3.0	10	7
		345	5,000	517	7,500	2.5	94	3.7	0.9	3.0	10	7
64	2.5	276	4,000	414	6,000	2.5	108	4.3	1.0	3.3	13	9
		345	5,000	517	7,500	2.5	110	4.3	1.0	3.3	15	10
		517	7,500	776	11,250	2.5	124	4.9	1.2	3.9	22	15 *
76	3.0	276	4,000	414	6,000	2.5	122	4.8	1.2	3.9	15	10
		345	5,000	517	7,500	2.5	124	4.9	1.2	3.9	17	11
		517	7,500	776	11,250	2.5	142	5.6	1.3	4.3	31	21 *
89	3.5	276	4,000	414	6,000	2.5	138	5.4	1.4	4.6	20	13
		345	5,000	517	7,500	2.5	138	5.4	1.4	4.6	20	13
		517	7,500	776	11,250	2.5	156	6.1	1.5	4.9	35	24 *
102	4.0	276	4,000	414	6,000	2.5	154	6.1	1.5	4.9	22	15 *
		345	5,000	517	7,500	2.5	164	6.5	1.5	4.9	32	22 *
		517	7,500	776	11,250	2.5	168	6.6	1.6	5.3	39	26 *

* API 7K not labelled

Managed Pressure Drilling Hose
mud return line

Standard

API Spec. 17K

Construction

	API 17K Smooth Bore	
Bore type	full flow, smooth bore	
Liner material	H_2S resistant PA	
Operating temperature	-20°C to +70°C (-4°F to 158°F)	-
Max. available length	60m (200ft)	

Features & Comments

- Used in both deepwater, shallow water and onshore MPD systems
- Fit for purpose hoses and hoses for Dual Gradient Drilling (DGD systems are also available upon request
- Further sizes and pressure ratings are available upon request
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (static)		MBR (dynamic)		Weight lb/ft
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	m	ft	kg/m
102	4.0	Fire rated c/w st. st. wrap	345	5,000	517	7,500	2.5	191	7.52	1.8	5.90	2.3	7.54	45	30.2
		Fire rated c/w moonpool protection						210	8.27	1.8	5.90	2.3	7.54	63	42.3
127	5.0	Fire rated c/w st. st. wrap	276	4,000	414	6,000	2.5	216	8.50	1.9	6.23	2.4	7.87	52	34.9
		Fire rated c/w moonpool protection						236	9.29	1.9	6.23	2.4	7.87	72	48.4
139	5.5	Fire rated c/w st. st. wrap	250	3,630	376	5,445	2.5	226	8.90	2.0	6.56	2.6	8.53	55	37.0
		Fire rated c/w moonpool protection						246	9.69	2.0	6.56	2.6	8.53	76	51.1
152	6.0	Fire rated c/w st. st. wrap	230	3,330	344	4,995	2.5	239	9.41	2.1	6.89	2.7	8.86	59	39.6
		Fire rated c/w moonpool protection						259	10.20	2.1	6.89	2.7	8.86	82	55.1

Managed Pressure Drilling Hose
bleed off line

Standard
API Spec. 17K

Construction

	API 17K Smooth Bore
Bore type	full flow, smooth bore
Liner material	H_2S resistant PA
Operating temperature	-20°C to +70°C (-4°F to 158°F)
Max. available length	60m (200ft)

Features & Comments
- Used in both deepwater, shallow water and onshore MPD systems
- Fit for purpose hoses and hoses for Dual Gradient Drilling (DGD) systems are also available upon request
- Further sizes and pressure ratings are available upon request
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (static)		MBR (dynamic)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
53	2.0	Fire rated c/w st.st. wrap	345	5,000	517	7,500	2.5	141	5.53	0.8	2.62	1.0	3.28	29.4	19.7
		Fire rated c/w moonpool protection						156	6.14	0.8	2.62	1.0	3.28	38.4	25.8

Cementing Hose

Standard

API Spec. 7K FSL 0

Construction

Bore type	full flow, smooth bore
Liner material	NBR
Operating temperature	-25°C to +100°C (-13°F to 212°F)
Max. available length	60m (200ft)

Features & Comments

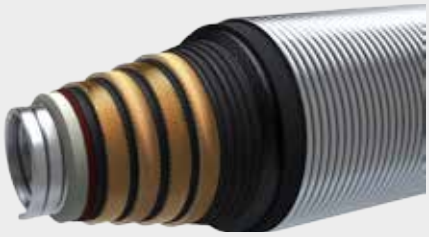
- Hoses with a temperature rating of -30°C to +121°C and -40°C to+82°C are available upon request

Technical Data

Inside Diameter		Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (storage)		MBR (operation)		Weight	
mm	in	bar	psi	bar	psi	(WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
51	2.0	345	5,000	690	10,000	2.5	72	2.83	0.6	1.97	0.6	1.97	7	4.9*
		345	5,000	690	10,000	2.5	104	4.09	0.6	1.97	0.7	2.30	15	10.1
		690	10,000	1,035	15,000	2.25	72	2.83	0.6	1.97	0.6	1.97	7	4.9*
		690	10,000	1,035	15,000	2.25	123	4.84	0.9	2.95	1.0	3.28	27	18.1
		1,035	15,000	1,552	22,500	2.25	140	5.51	1.1	3.61	1.4	4.59	40	26.9
64	2.5	345	5,000	690	10,000	2.5	111	4.37	0.6	1.97	0.7	2.30	15	10.1
		690	10,000	1,035	15,000	2.25	136	5.35	1.0	3.28	1.1	3.61	31	20.8
		1,035	15,000	1,552	22,500	2.25	153	6.02	1.2	3.94	1.5	4.92	45	30.2
76	3.0	345	5,000	690	10,000	2.5	126	4.96	0.7	2.30	0.8	2.62	18	12.1
		690	10,000	1,035	15,000	2.25	148	5.83	1.1	3.61	1.2	3.94	34	22.8
		1,035	15,000	1 552	22,500	2.25	166	6.54	1.4	4.59	1.6	5.25	53	35.6
		1,380	20,000	2,070	30,000	2.25	210	8.27	1.6	5.25	1.6	5.25	109	73.2
102	4.0	345	5,000	690	10,000	2.5	166	6.54	1.0	3.28	1.2	3.94	33	22.2
		690	10,000	1,035	15,000	2.25	192	7.56	1.5	4.92	1.7	5.58	61	41.0
		1,035	15,000	1,552	22,500	2.25	222	8.74	1.4	4.59	1.4	4.59	108	72.6

* crimped design

Flexible Choke & Kill Line
with TauroFlon™ liner (up to 130°C)



Standard
API Spec. 16C up to FSL 3

Construction

Bore type	full flow, rough bore
Liner material	H_2S resistant TauroFlon™
Operating temperature	-20°C to +130°C (-4°F to 266°F)
Survival temperature	177°C (350°F) for at least 1 hour
Max. available length	60m (200ft)

Features & Comments

- Suitable for well completion
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition
- See Flexible Tauro™Fit Choke & Kill Lines for subsea BOPs and for Flexible Choke & Kill Lines with extremely small MBRs
- See Well Test Hoses for well test applicaitons

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (storage)		MBR (dynamic)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
54	2.0	Standard	345	5,000	517	7,500	2.25	146	5.8	0.8	2.6	0.8	2.6	40	27
		Standard c/w st. st. wrap						151	5.9	0.8	2.6	0.8	2.6	46	31
		Fire rated						159	6.3	0.9	3.0	0.9	3.0	46	31
		Fire rated c/w st. st. wrap						165	6.5	0.9	3.0	0.9	3.0	52	35
		Standard	690	10,000	1,035	15,000	2.25	146	5.8	0.8	2.6	0.8	2.6	40	27
		Standard c/w st. st. wrap						151	5.9	0.8	2.6	0.8	2.6	46	31
		Fire rated						159	6.3	0.8	2.6	0.8	2.6	46	31
		Fire rated c/w st. st. wrap						165	6.5	0.8	2.6	0.8	2.6	52	35
		Standard	1,035	15,000	1,552	22,500	2.25	175	6.9	1.2	3.9	1.2	3.9	72	48
		Standard c/w st. st. wrap						181	7.1	1.2	3.9	1.2	3.9	78	52
		Fire rated						188	7.4	1.3	4.3	1.3	4.3	79	53
		Fire rated c/w st. st. wrap						194	7.6	1.3	4.3	1.3	4.3	86	58
65	2.5	Standard	345	5,000	517	7,500	2.25	159	6.3	0.9	3.0	0.9	3.0	46	31
		Standard c/w st. st. wrap						165	6.5	0.9	3.0	0.9	3.0	52	35
		Fire rated						172	6.8	1.0	3.3	1.0	3.3	52	35
		Fire rated c/w st. st. wrap						178	7.0	1.0	3.3	1.0	3.3	59	40
		Standard	690	10,000	1,035	15,000	2.25	159	6.3	0.9	3.0	0.9	3.0	46	30
		Standard c/w st. st. wrap						165	6.5	0.9	3.0	0.9	3.0	52	35
		Fire rated						172	6.8	1.0	3.3	1.0	3.3	52	35
		Fire rated c/w st. st. wrap						178	7.0	1.0	3.3	1.0	3.3	59	40
		Standard	1,035	15,000	1,552	22,500	2.25	188	7.4	1.3	4.3	1.3	4.3	80	54
		Standard c/w st. st. wrap						194	7.6	1.3	4.3	1.3	4.3	87	59
		Fire rated						202	8.0	1.4	4.6	1.4	4.6	88	59
		Fire rated c/w st. st. wrap						207	8.2	1.4	4.6	1.4	4.6	96	65
78	3.0	Standard	345	5,000	517	7,500	2.25	188	7.4	0.9	3.0	0.9	3.0	80	54
		Standard c/w st. st. wrap						194	7.6	0.9	3.0	0.9	3.0	87	59
		Fire rated						202	8.0	1.0	3.3	1.0	3.3	88	59
		Fire rated c/w st. st. wrap						207	8.2	1.0	3.3	1.0	3.3	96	65
		Standard	690	10,000	1,035	15,000	2.25	188	7.4	0.9	3.0	0.9	3.0	80	54
		Standard c/w st. st. wrap						194	7.6	0.9	3.0	0.9	3.0	87	59
		Fire rated						202	8.0	1.0	3.3	1.0	3.3	88	59
		Fire rated c/w st. st. wrap						207	8.2	1.0	3.3	1.0	3.3	96	65
		Standard	1,035	15,000	1,552	22,500	2.25	204	8.0	1.4	4.6	1.4	4.6	95	64
		Standard c/w st. st. wrap						210	8.3	1.4	4.6	1.4	4.6	102	69
		Fire rated						218	8.6	1.5	4.9	1.5	4.9	103	69
		Fire rated c/w st. st. wrap						223	8.8	1.5	4.9	1.5	4.9	111	75
104	4.0	Standard	345	5,000	517	7,500	2.25	124	5.0	1.4	4.6	1.4	4.6	94	63
		Standard c/w st. st. wrap						130	5.1	1.4	4.6	1.4	4.6	103	69
		Fire rated						237	9.3	1.5	4.9	1.5	4.9	104	70
		Fire rated c/w st. st. wrap						243	9.6	1.5	4.9	1.5	4.9	112	75
		Standard	690	10,000	1,035	15,000	2.25	124	5.0	1.4	4.6	1.4	4.6	94	63
		Standard c/w st. st. wrap						130	5.1	1.4	4.6	1.4	4.6	103	69
		Fire rated						237	9.3	1.5	4.9	1.5	4.9	104	70
		Fire rated c/w st. st. wrap						243	9.6	1.5	4.9	1.5	4.9	112	75

Flexible Choke & Kill Line
with PA liner (up to 130°C)

Standard
API Spec. 16C up to FSL 3

Construction

Bore type	full flow, rough bore
Liner material	H_2S resistant PA
Operating temperature	-20°C to +130°C (-4°F to 266°F)
Survival temperature	177°C (350°F) for at least 1 hour
Max. available length	60m (200ft)

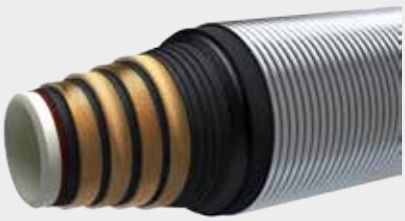
Features & Comments
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition
- See Flexible Tauro™Fit Choke & Kill Lines for subsea BOPs and for Flexible Choke & Kill Lines with extremely small MBRs

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (storage)		MBR (operation)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
54	2.0	Standard	345	5,000	517	7,500	2.25	142	5.6	0.8	2.6	0.8	2.6	38	26
		Standard c/w st. st. wrap						152	6.0	0.8	2.6	0.8	2.6	42	28
		Fire rated						155	6.1	0.9	3.0	0.9	3.0	44	30
		Fire rated c/w st. st. wrap						167	6.6	0.9	3.0	0.9	3.0	50	34
		Standard	690	10,000	1,035	15,000	2.25	142	5.6	0.8	2.6	0.8	2.6	38	26
		Standard c/w st. st. wrap						152	6.0	0.8	2.6	0.8	2.6	42	28
		Fire rated						155	6.1	0.8	2.6	0.8	2.6	44	30
		Fire rated c/w st. st. wrap						167	6.6	0.8	2.6	0.8	2.6	50	34
		Standard	1,035	15,000	1,552	22,500	2.25	177	7.0	1.2	3.9	1.2	3.9	69	46
		Standard c/w st. st. wrap						188	7.4	1.2	3.9	1.2	3.9	76	51
		Fire rated						190	7.5	1.3	4.3	1.3	4.3	76	51
		Fire rated c/w st. st. wrap						202	8.0	1.3	4.3	1.3	4.3	84	56
65	2.5	Standard	345	5,000	517	7,500	2.25	155	6.1	0.9	3.0	0.9	3.0	43	29
		Standard c/w st. st. wrap						167	6.6	0.9	3.0	0.9	3.0	49	33
		Fire rated						169	6.7	1.0	3.3	1.0	3.3	49	33
		Fire rated c/w st. st. wrap						180	7.1	1.0	3.3	1.0	3.3	56	38
		Standard	690	10,000	1,035	15,000	2.25	155	6.1	0.9	3.0	0.9	3.0	43	29
		Standard c/w st. st. wrap						167	6.6	0.9	3.0	0.9	3.0	49	33
		Fire rated						169	6.7	1.0	3.3	1.0	3.3	49	33
		Fire rated c/w st. st. wrap						180	7.1	1.0	3.3	1.0	3.3	56	38
		Standard	1,035	15,000	1,552	22,500	2.25	191	7.5	1.3	4.3	1.3	4.3	77	52
		Standard c/w st. st. wrap						202	8.0	1.3	4.3	1.3	4.3	85	57
		Fire rated						204	8.0	1.4	4.6	1.4	4.6	85	57
		Fire rated c/w st. st. wrap						215	8.5	1.4	4.6	1.4	4.6	94	63
78	3.0	Standard	345	5,000	517	7,500	2.25	168	6.6	0.9	3.0	0.9	3.0	49	33
		Standard c/w st. st. wrap						180	7.1	0.9	3.0	0.9	3.0	56	38
		Fire rated						182	7.2	1.0	3.3	1.0	3.3	56	38
		Fire rated c/w st. st. wrap						193	7.6	1.0	3.3	1.0	3.3	63	42
		Standard	690	10,000	1,035	15,000	2.25	168	6.6	0.9	3.0	0.9	3.0	49	33
		Standard c/w st. st. wrap						180	7.1	0.9	3.0	0.9	3.0	56	38
		Fire rated						182	7.2	1.0	3.3	1.0	3.3	56	38
		Fire rated c/w st. st. wrap						193	7.6	1.0	3.3	1.0	3.3	63	42
		Standard	1,035	15,000	1,552	22,500	2.25	208	8.2	1.4	4.6	1.4	4.6	90	61
		Standard c/w st. st. wrap						219	8.6	1.4	4.6	1.4	4.6	98	66
		Fire rated						218	8.6	1.5	4.9	1.5	4.9	97	65
		Fire rated c/w st. st. wrap						230	9.1	1.5	4.9	1.5	4.9	106	71
104	4.0	Standard	345	5,000	517	7,500	2.25	219	8.6	1.4	4.6	1.4	4.6	89	60
		Standard c/w st. st. wrap						230	9.1	1.4	4.6	1.4	4.6	98	66
		Fire rated						232	9.1	1.5	4.9	1.5	4.9	98	66
		Fire rated c/w st. st. wrap						243	9.6	1.5	4.9	1.5	4.9	108	73
		Standard	690	10,000	1,035	15,000	2.25	219	8.6	1.4	4.6	1.4	4.6	89	60
		Standard c/w st. st. wrap						230	9.1	1.4	4.6	1.4	4.6	98	66
		Fire rated						232	9.1	1.5	4.9	1.5	4.9	98	66
		Fire rated c/w st. st. wrap						243	9.6	1.5	4.9	1.5	4.9	108	73
104	4.0	Standard	1,035	15,000	1,552	22,500	2.25	244	9.6	1.6	5.2	1.6	5.2	126	85*
		Standard c/w st. st. wrap						250	9.8	1.6	5.2	1.6	5.2	135	91*
		Fire rated						254	10.0	1.7	5.6	1.7	5.6	135	91*
		Fire rated c/w st. st. wrap						260	10.2	1.7	5.6	1.7	5.6	144	97*

* Limited to FSL 1

Flexible Choke & Kill Line
with PA liner (up to 100°C)



Standard
API Spec. 16C up to FSL 3

Construction

Bore type	full flow, smooth bore
Liner material	H_2S resistant PA
Operating temperature	-20°C to +100°C (-4°F to 212°F)
Survival temperature	177°C (350°F) for at least 1 hour
Max. available length	60m (200ft)

Features & Comments
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition
- See Flexible Tauro™Fit Choke & Kill Lines for subsea BOPs and for Flexible Choke & Kill Lines with extreme small MBRs

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (storage)		MBR (opertion)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
51	2.0	Standard	345	5,000	517	7,500	2.25	113	4.5	0.8	2.6	0.8	2.6	24	16
		Standard c/w st. st. wrap						123	4.8	0.8	2.6	0.8	2.6	28	19
		Fire rated						128	5.0	0.9	3.0	0.9	3.0	29	20
		Fire rated c/w st. st. wrap						138	5.4	0.9	3.0	0.9	3.0	33	22
		Standard	690	10,000	1,035	15,000	2.25	113	4.5	0.8	2.6	0.8	2.6	24	16
		Standard c/w st. st. wrap						123	4.8	0.8	2.6	0.8	2.6	28	19
		Fire rated						128	5.0	0.9	3.0	0.9	3.0	29	20
		Fire rated c/w st. st. wrap						138	5.4	0.9	3.0	0.9	3.0	33	22
		Standard	1,035	15,000	1,552	22,500	2.25	136	5.4	1.0	3.3	1.1	3.6	40	27
		Standard c/w st. st. wrap						146	5.8	1.0	3.3	1.1	3.6	45	30
		Fire rated						150	5.9	1.1	3.6	1.2	3.9	46	31
		Fire rated c/w st. st. wrap						162	6.4	1.1	3.6	1.2	3.9	53	36
64	2.5	Standard	345	5,000	517	7,500	2.25	127	5.0	0.9	3.0	0.9	3.0	28	19
		Standard c/w st. st. wrap						137	5.4	0.9	3.0	0.9	3.0	32	22
		Fire rated						141	5.6	1.0	3.3	1.0	3.3	34	23
		Fire rated c/w st. st. wrap						151	5.9	1.0	3.3	1.0	3.3	38	26
		Standard	690	10,000	1,035	15,000	2.25	127	5.0	0.9	3.0	0.9	3.0	28	19
		Standard c/w st. st. wrap						137	5.4	0.9	3.0	0.9	3.0	32	22
		Fire rated						141	5.6	1.0	3.3	1.0	3.3	34	23
		Fire rated c/w st. st. wrap						151	5.9	1.0	3.3	1.0	3.3	38	26
		Standard	1,035	15,000	1,552	22,500	2.25	149	5.9	1.1	3.6	1.3	4.3	46	31
		Standard c/w st. st. wrap						159	6.3	1.1	3.6	1.3	4.3	51	34
		Fire rated						164	6.5	1.2	3.9	1.4	4.6	53	36
		Fire rated c/w st. st. wrap						175	6.9	1.2	3.9	1.4	4.6	60	40
76	3.0	Standard	345	5,000	517	7,500	2.25	141	5.6	0.9	3.0	0.9	3.0	32	22
		Standard c/w st. st. wrap						151	5.9	0.9	3.0	0.9	3.0	37	25
		Fire rated						155	6.1	1.0	3.3	1.0	3.3	39	26
		Fire rated c/w st. st. wrap						167	6.6	1.0	3.3	1.0	3.3	45	30
		Standard	690	10,000	1,035	15,000	2.25	141	5.6	0.9	3.0	0.9	3.0	32	22
		Standard c/w st. st. wrap						151	5.9	0.9	3.0	0.9	3.0	37	25
		Fire rated						155	6.1	1.0	3.3	1.0	3.3	39	26
		Fire rated c/w st. st. wrap						167	6.6	1.0	3.3	1.0	3.3	45	30
		Standard	1,035	15,000	1,552	22,500	2.25	164	6.5	1.2	3.9	1.4	4.6	52	35
		Standard c/w st. st. wrap						175	6.9	1.2	3.9	1.4	4.6	59	40
		Fire rated						178	7.0	1.4	4.6	1.7	5.6	59	40
		Fire rated c/w st. st. wrap						190	7.5	1.4	4.6	1.7	5.6	67	45
102	4.0	Standard	345	5,000	517	7,500	2.25	184	7.2	1.4	4.6	1.4	4.6	54	36
		Standard c/w st. st. wrap						190	7.5	1.4	4.6	1.4	4.6	61	41
		Fire rated						198	7.8	1.5	4.9	1.5	4.9	66	44
		Fire rated c/w st. st. wrap						204	8.0	1.5	4.9	1.5	4.9	70	47
		Standard	690	10,000	1,035	15,000	2.25	184	7.2	1.4	4.6	1.4	4.6	54	36
		Standard c/w st. st. wrap						190	7.5	1.4	4.6	1.4	4.6	61	41
		Fire rated						198	7.8	1.5	4.9	1.5	4.9	66	44
		Fire rated c/w st. st. wrap						204	8.0	1.5	4.9	1.5	4.9	70	47

Flexible Tauro™Fit Choke & Kill Line for subsea BOPs

Standard

API Spec. 16C up to FSL 3

Construction

Bore type	full flow, rough bore
Liner material	H_2S resistant PA
Shape	Preformed
Operating temperature	-20°C to +121°C (-4°F to 250°F)
Survival temperature	177°C (350°F) for at least 1 hour

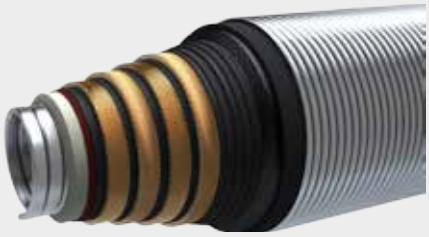
Features & Comments

- Easy installation in confined spaces
- Extended service life as a result of reduced risk of over-bending and reduced stress on hose body and on coupling
- Transfers less load to adjacent equipment or pipework
- New short coupling design increases flexible length with no reduction in bonding strength
- Opens up new design opportunities to reduce the size and weight of oil field equipment
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition

Technical Data

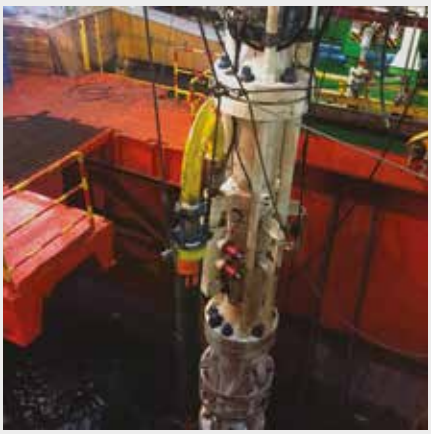
Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (operation)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	kg/m	lb/ft
78	3.0	Standard	690	10,000	1,035	15,000	2.25	168	6.6	0.6	2.0	49	33
		Standard c/w st. st. wrap						180	7.1	0.6	2.0	56	38
		Fire rated						182	7.2	0.7	2.3	56	38
		Fire rated c/w st. st. wrap						193	7.6	0.7	2.3	63	42
		Standard	1,035	15,000	1,552	22,500	2.25	208	8.2	1.0	3.3	90	61
		Standard c/w st. st. wrap						213	8.4	1.0	3.3	97	65
		Fire rated						218	8.6	1.1	3.6	97	65
		Fire rated c/w st. st. wrap						224	8.8	1.1	3.6	105	71

Mud Booster Hose



Standard
API Spec. 7K FSL1 - FSL 2 & API SPec. 16C - up to FSL 3

Construction	API 16C - up to FSL 3	API 7K FSL 1 - FSL 2
Bore type	full flow, rough bore	full flow, smooth bore
Liner material	H_2S resistant TauroFlon™ & PA	NBR
Operating temperature	-20°c to +130°C (-4°F to 250°F)	-25°C to +100°C (-13°F to 212°F)
Max. available length	60m (200ft)	60m (200ft)



Features & Comments
- The construction with TauroFlon™ liner is suitable for well completion
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition

Technical Data

As per API Spec. 16C with TauroFlon™ lining

Inside Diameter		Type	Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (storage)		MBR (opertion)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
104	4.0	Standard	345	5,000	517	7,500	2.25	124	4.88	1.4	4.6	1.4	4.6	94	63
		Standard c/w st. st. wrap						130	5.12	1.4	4.6	1.4	4.6	103	69
		Fire rated						237	9.33	1.5	4.9	1.5	4.9	104	70
		Fire rated c/w st. st. wrap						243	9.57	1.5	4.9	1.5	4.9	112	75

As per API Spec. 16C with PA lining

Inside Diameter		Type	Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (storage)		MBR (opertion)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
104	4.0	Standard	345	5,000	517	7,500	2.25	219	8.6	1.4	4.6	1.4	4.6	89	60
		Standard c/w st. st. wrap						230	9.1	1.4	4.6	1.4	4.6	98	66
		Fire rated						232	9.1	1.5	4.9	1.5	4.9	98	66
		Fire rated c/w st. st. wrap						243	9.6	1.5	4.9	1.5	4.9	108	72

As per API Spec. 7K

Inside Diameter		Type	Working Pressure		Test Pressure		API Grade	Safety Factor	Outer Diameter		MBR (operation)		Weight	
mm	in		bar	psi	bar	psi		(WP)	mm	in	m	ft	kg/m	lb/ft
102	4.0	Standard	345	5,000	517	7,500	D	2.5	159	6.3	1.0	4.0	29	20
		Standard	517	7,500	776	11,250	E	2.5	174	6.9	1.4	4.6	42	28
127	5.0	Standard	345	5,000	517	7,500	D	2.5	213	8.4	1.5	4.9	67	45
		Standard	517	7,500	776	11,250	E	2.5	213	8.4	1.5	4.9	67	45

Hydraulic Conduit Hose

Standard

API Spec. 7K FSL1 - FSL 2 & API Spec. 16C - up to FSL 3

Construction	API 7K FSL 1 - FSL 2	API 16C - up to FSL 3
Bore type	full flow, smooth bore	full flow, smooth bore
Liner material	NBR	H_2S resistant PA
Operating temperature	-25°C to +100°C (-13°F to 212°F)	-20°c to +100°C (-4°F to 212°F)
Max. available length	60m (200ft)	60m (200ft)

Features & Comments

- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition

Technical Data

As per API Spec. 7K

Inside Diameter		Working Pressure		Test Pressure		API Grade	Safety Factor	Outer Diameter		MBR (storage)		MBR (operation)		Weight	
mm	in	bar	psi	bar	psi		(WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
51	2.0	345	5,000	517	7,500	D	2.5	104	4.09	0.6	1.97	0.7	2.30	15	10.1
64	2.5	345	5,000	517	7,500	D	2.5	111	4.37	0.6	1.97	0.7	2.30	15	10.1
76	3.0	345	5,000	517	7,500	D	2.5	126	4.96	0 7	2.30	0.8	2.62	18	12.1
89	3.5	345	5,000	517	7,500	D	2.5	140	5.51	0.8	2.62	0.9	2.95	21	14.1

As per API Spec. 16C

Inside Diameter		Type	Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (storage)		MBR (opertion)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
51	2.0	Standard	345	5,000	517	7.500	2.25	113	4.45	0.8	2.6	0.8	2.6	24	16
		Standard c/w st. st. wrap						123	4.84	0.8	2.6	0.8	2.6	28	19
		Fire rated						128	5.04	0.9	3.0	0.9	3.0	29	20
		Fire rated c/w st. st. wrap						138	5.43	0.9	3.0	0.9	3.0	33	22
64	2.5	Standard	345	5,000	517	7.500	2.25	127	5.00	0.9	3.0	0.9	3.0	28	19
		Standard c/w st. st. wrap						137	5.39	0.9	3.0	0.9	3.0	32	22
		Fire rated						141	5.55	1.0	3.3	1.0	3.3	34	23
		Fire rated c/w st. st. wrap						151	5.94	1.0	3.3	1.0	3.3	38	26
76	3.0	Standard	345	5,000	517	7.500	2.25	141	5.55	0.9	3.0	0.9	3.0	32	22
		Standard c/w st. st. wrap						151	5.94	0.9	3.0	0.9	3.0	37	25
		Fire rated						155	6.10	1.0	3.3	1.0	3.3	39	26
		Fire rated c/w st. st. wrap						167	6.57	1.0	3.3	1.0	3.3	45	30

Blowout Preventer Control Hose
Fireshield 5000

Construction

Bore type	not full flow, smooth bore
Liner material	NBR
Reinforcement	2 wire braid (up to 3/8”) 4 or 6 wire spirals (above 3/8”)
Cover	Red flame retardant CR rubber over layers of heat resistant fibre
Operating temperature	-20°C to +100°C (-4°F to 212°F)
Max. available length	60m (200ft)

Features & Comments

- Used in onshore and offshore drilling operations on the Blow Out Preventer (BOP) to provide hydraulic power to seal the well head in case of a kick or an emergency situation where operation is critical during exposure to fire and high temperature
- Fire rating meets and exceeds Lloyd’s Register OD/1000/499 at 700°C for 5 minutes in accordance to the guidelines of API 16D
- The QR74 Quick Release valved couplings also fully comply to Lloyd’s Register OD/1000/499 fire rating
- Stainless steel armour is available upon request to protect the hose against external mechanical damage

Technical Data

Inside Diameter		Working Pressure		Min Burst Pressure		Outside Diameter		Min Bend Radius		Weight	
mm	in	bar	psi	bar	psi	mm	in	mm	in	kg/m	lb/ft
6.5	1/4	345	5,000	1,380	20,000	20.0	0.8	110	4.3	0.75	0.50
9.5	3/8	345	5,000	1,380	20,000	24.0	0.9	150	5.9	0.80	0.54
12.7	1/2	345	5,000	1,380	20,000	30.0	1.2	250	9.8	1.22	0.82
19.1	3/4	345	5,000	1,380	20,000	37.0	1.5	330	13.0	1.82	1.22
25.1	1	345	5,000	1,380	20,000	44.0	1.7	375	14.8	2.53	1.70
31.7	1 1/4	345	5,000	1,380	20,000	58.0	2.3	460	18.1	4.20	2.82
38.1	1 1/2	345	5,000	1,380	20,000	63.0	2.5	520	20.5	6.29	4.23
50.8	2	345	5,000	1,380	20,000	77.0	3.0	700	27.6	8.90	5.98

Well Test Production Hose

Standard

API Spec. 17K & API Spec. 16C - up to FSL 3

Construction	API 16C - up to FSL 3		API 17K
Bore type	full flow, rough bore	full flow, rough bore	full flow, rough bore
Liner material	H_2S resistant TauroFlon™	H_2S resistant PA	H_2S resistant PA
Operating temperature	-20°c to +130°C (-4°F to 266°F)	-20°c to +100°C (-4°F to 212°F)	-20°C to +90°C (-4°F to 194°F)
Max. available length	60m (200ft)	60m (200ft)	60m (200ft)

Features & Comments

- Suitable for both Drill Stem test (DST) and Production Test (PT)
- Designed to withstand continuous periods of operation with a high risk of rapid decompression
- There is no recognised industry standard for Well Test Production Hoses. However, in view of the typical operating conditions, the API specifications for Flexible Choke & Kill Lines (API 16C) or Bonded Flexible Pipes (API 17K) used for production should be considered. Flexible Choke & Kill Lines are designed to withstand short-term high pressure and high temperature operation, whilst production hoses must withstand continuous periods of operation with a high risk of decompression
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition

Technical Data

As per API Spec. 16C with TauroFlon™ lining

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (operation)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	kg/m	lb/ft
78	3.0	Fire rated c/w st. st. wrap	690	10,000	1,035	15,000	2.25	207	8.2	1.0	3.3	96	65
		Fire rated c/w st. st. wrap	1,035	15,000	1,552	22,500	2.25	223	8.8	1.5	4.9	111	75
104	4.0	Fire rated c/w st. st. wrap	690	10,000	1,035	15,000	2.25	243	9.6	1.5	4.9	112	75

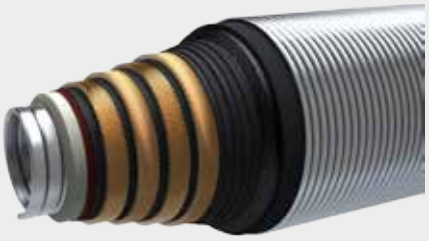
As per API Spec. 16C with PA lining

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (operation)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	kg/m	lb/ft
78	3.0	Fire rated c/w st. st. wrap	690	10,000	1,035	15,000	2.25	193	7.6	1.0	3.3	63	42
		Fire rated c/w st. st. wrap	1,035	15,000	1,552	22,500	2.25	230	9.1	1.5	4.9	106	71
104	4.0	Fire rated c/w st. st. wrap	690	10,000	1,035	15,000	2.25	243	9.6	1.5	4.9	108	73

As per API Spec. 17K with PA lining

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (static)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	kg/m	lb/ft
78	3.0	Fire rated c/w st. st. wrap	517	7,500	690	11,250	2.25	201	7.9	1.5	4.9	67	45
104	4.0	Fire rated c/w st. st. wrap	517	7,500	690	11,250	2.25	251	9.9	1.8	5.9	112	75

Well Stimulation / Acidizing Hose



Standard
API Spec. 16C - up to FSL 3

Construction	API 16C - up to FSL 3	API 16C - up to FSL 3
Bore type	full flow, rough bore	full flow, rough bore
Liner material	H_2S resistant TauroFlon™	H_2S resistant PA
Operating temperature	-20°c to +130°C (-4°F to 266°F)	-20°c to +100°C (-4°F to 212°F)
Max. available length	60m (200ft)	60m (200ft)

Features & Comments
- Designed to withstand a large range of acidizing liquids and fracturing solutions
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition

Technical Data

As per API Spec. 16C with TauroFlon™ lining

Inside Diameter		Type	Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (operation)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	kg/m	lb/ft
78	3.0	Standard	690	10,000	1,035	15,000	2.25	188	7.4	0.9	3.0	80	54
		Standard c/w st. st. wrap						194	7.6	0.9	3.0	87	59
		Fire rated						202	8.0	1.0	3.3	88	59
		Fire rated c/w st. st. wrap						207	8.2	1.0	3.3	96	65
		Standard	1,035	15,000	1,552	22,500	2.25	204	8.0	1.4	4.6	95	64
		Standard c/w st. st. wrap						210	8.3	1.4	4.6	102	69
		Fire rated						218	8.6	1.5	4.9	103	69
		Fire rated c/w st. st. wrap						223	8.8	1.5	4.9	111	75
104	4.0	Standard	690	10,000	1,035	15,000	2.25	124	4.9	1.4	4.6	94	63
		Standard c/w st. st. wrap						130	5.1	1.4	4.6	103	69
		Fire rated						237	9.3	1.5	4.9	104	70
		Fire rated c/w st. st. wrap						243	9.6	1.5	4.9	112	75

As per API Spec. 16C with PA lining

Inside Diameter		Type	Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (operation)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	kg/m	lb/ft
78	3.0	Standard	690	10,000	1,035	15,000	2.25	168	6.6	0.9	3.0	49	33
		Standard c/w st. st. wrap						180	7.1	0.9	3.0	56	38
		Fire rated						182	7.2	1.0	3.3	56	38
		Fire rated c/w st. st. wrap						193	7.6	1.0	3.3	63	42
		Standard	1,035	15,000	1,552	22,500	2.25	208	8.2	1.4	4.6	90	61
		Standard c/w st. st. wrap						219	8.6	1.4	4.6	98	66
		Fire rated						218	8.6	1.5	4.9	97	65
		Fire rated c/w st. st. wrap						230	9.1	1.5	4.9	106	71
104	4.0	Standard	690	10,000	1,035	15,000	2.25	219	8.6	1.4	4.6	89	60
		Standard c/w st. st. wrap						230	9.1	1.4	4.6	98	66
		Fire rated						232	9.1	1.5	4.9	98	66
		Fire rated c/w st. st. wrap						243	9.6	1.5	4.9	108	73

Burner/Flare Boom Hose

Standard
API Spec. 17K

Construction

Bore type	full flow, rough bore
Liner material	H_2S resistant HNBR
Operating temperature	-30°C to +90°C (-22°F to 194°F)
Max. available length	60m (200ft)

Features & Comments
- Designed to connect the production test manifold to the burner / flare boom
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition
- Material of the end fittings is either carbon steel or duplex
- Material of the internal carcass is either 316L or 254 SMO

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (static)		MBR (dynamic)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
76	3.0	Fire rated	207	3000	310	4500	2.25	179	7.05	1.1	3.6	1.5	4.9	46	31
		Fire rated c/w st. st. wrap						185	7.28	1.1	3.6	1.5	4.9	53	36
		Fire rated	345	5,000	517	7,500	2.25	197	7.76	1.2	3.9	1.7	5.6	65	44
		Fire rated c/w st. st. wrap						208	8.19	1.2	3.9	1.7	5.6	73	49
102	4.0	Fire rated	207	3000	310	4500	2.25	205	8.07	1.4	4.6	1.8	5.9	57	38
		Fire rated c/w st. st. wrap						211	8.31	1.4	4.6	1.8	5.9	64	43
		Fire rated	345	5,000	517	7,500	2.25	223	8.78	1.5	4.9	2.0	6.6	79	53
		Fire rated c/w st. st. wrap						234	9.21	1.5	4.9	2.0	6.6	88	59
130	5.0	Fire rated	207	3000	310	4500	2.25	249	9.80	1.5	4.9	2.0	6.6	92	62
		Fire rated c/w st. st. wrap						261	10.28	1.5	4.9	2.0	6.6	102	69
		Fire rated	345	5,000	517	7,500	2.25	252	9.92	1.6	5.3	2.1	6.9	97	65
		Fire rated c/w st. st. wrap						263	10.35	1.6	5.3	2.1	6.9	107	72
152	6.0	Fire rated	207	3000	310	4500	2.25	259	10.20	1.6	5.3	2.1	6.9	79	53
		Fire rated c/w st. st. wrap						270	10.63	1.6	5.3	2.1	6.9	89	60
		Fire rated	345	5,000	518	7,500	2.25	279	10.98	1.9	6.2	2.6	8.5	112	75
		Fire rated c/w st. st. wrap						291	11.46	1.9	6.2	2.6	8.5	124	83

Riser Tensioner Hose

Standard
API Spec. 17K

Construction

Bore type	full flow, rough bore
Liner material	H_2S resistant HNBR
Operating temperature	-30°C to +70°C (-22°F to 158°F)
Max. available length	60m (200ft)

Features & Comments

- Used for transporting hydraulic fluid between gas filled accumulators and large hydraulic cylinders. Although they are not in direct contact with pressurised gas, the hydraulic fluid will invariably contain dissolved gas after some time, even in configurations with pistons between the gas and the liquid phase. There is a clear risk that this dissolved gas can cause collapse of the hose liner and ultimate failure following decompression. Since API 7K does not include gas exposure testing, it should not be considered for riser tensioner hose applications.
- Oil and glycol resistant liner

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (static)		MBR (dynamic)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
152	6.0	Fire rated	207	3,000	310	4,500	2.5	257	10.1	1.6	5.3	1.8	5.9	72	48
		Fire rated	517	7,500	776	11,250	2.25	278	10.9	1.9	6.2	2.6	8.5	112	75
207	8.0	Fire rated	345	5,000	517	7,500	2.25	331	13.0	2.4	7.9	3.2	10.5	139	93

Drill String Compensator Hose

Standard

API Spec. 17K

Construction

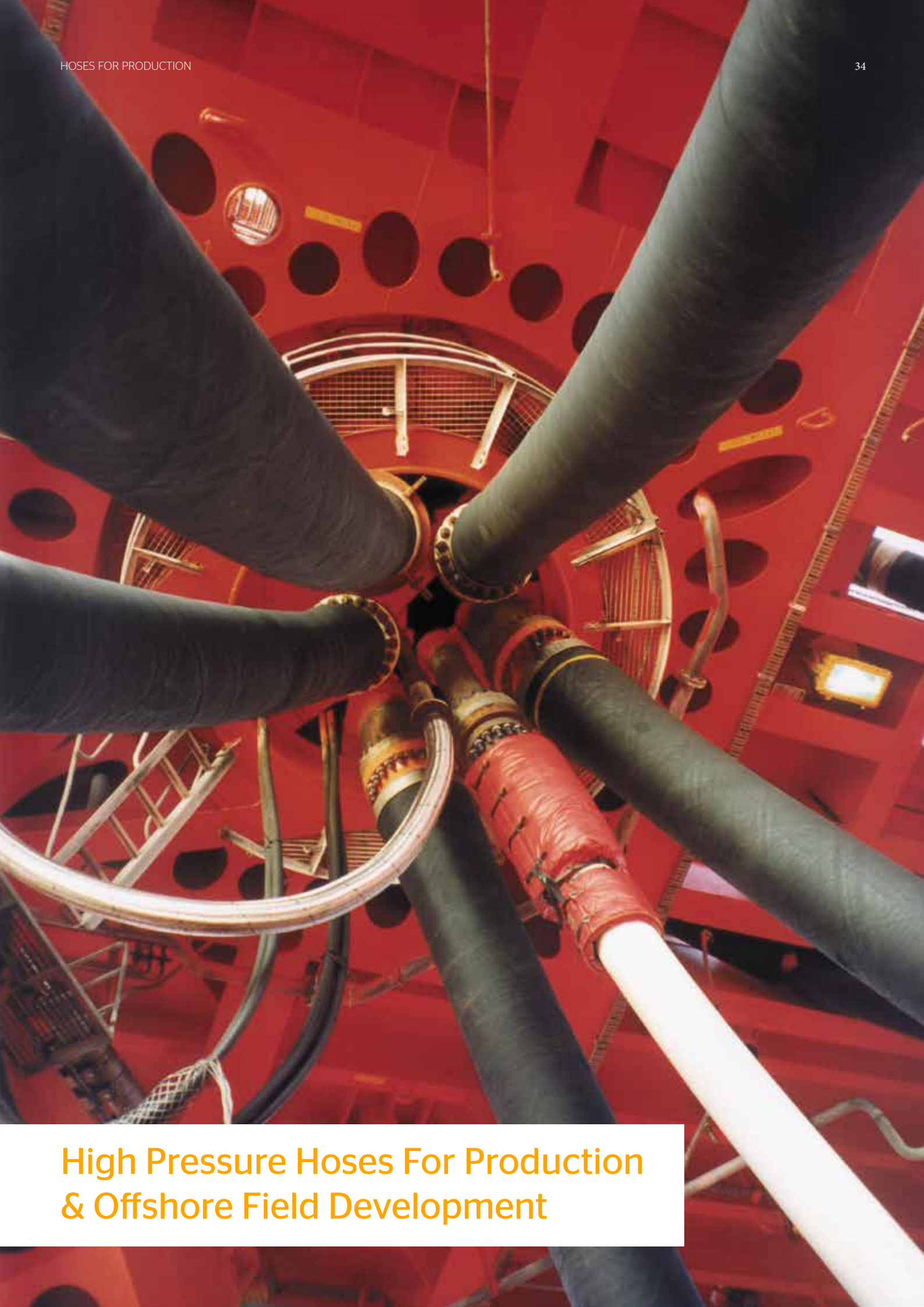
Bore type	full flow, rough bore
Liner material	H_2S resistant HNBR
Operating temperature	-30°C to +90°C (-22°F to 194°F)
Max. available length	60m (200ft)

Features & Comments

- Used for hydro-pneumatic medium transport to the drill string compensator cylinder to isolate the heaving motion of the rig from the drill string

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (static)		MBR (dynamic)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
53	2.0	Standard	207	3,000	310	4,500	2.25	130	5.1	0.8	2.6	1.1	3.6	46	31
		Standard	345	5,000	517	7,500	2.25	148	5.8	0.9	3.0	1.2	3.9	39	26
65	2.5	Standard	207	3,000	310	4,500	2.25	142	5.6	0.9	3.0	1.2	3.9	29	20
		Standard	345	5,000	517	7,500	2.25	159	6.3	0.9	3.0	1.2	3.9	44	30
78	3.0	Standard	207	3,000	310	4,500	2.25	158	6.2	1.0	3.3	1.4	4.6	39	26
		Standard	345	5,000	517	7,500	2.25	176	6.9	1.1	3.6	1.5	4.9	54	36
92	3.5	Standard	207	3,000	310	4,500	2.25	173	6.8	1.1	3.6	1.5	4.9	41	28
		Standard	345	5,000	517	7,500	2.25	190	7.5	1.2	3.9	1.7	5.6	60	40
103	4.0	Standard	207	3,000	310	4,500	2.25	184	7.2	1.2	3.9	1.7	5.6	45	30
		Standard	345	5,000	517	7,500	2.25	202	8.0	1.4	4.6	1.8	5.9	67	45
127	5.0	Standard	207	3,000	310	4,500	2.25	211	8.3	1.4	4.6	1.8	5.9	54	36
		Standard	345	5,000	517	7,500	2.25	231	9.1	1.5	4.9	2.0	6.6	83	56
152	6.0	Standard	207	3,000	310	4,500	2.25	236	9.3	1.6	5.3	2.1	6.9	63	42
		Standard	345	5,000	517	7,500	2.25	257	10.1	1.8	5.9	2.4	7.9	96	65



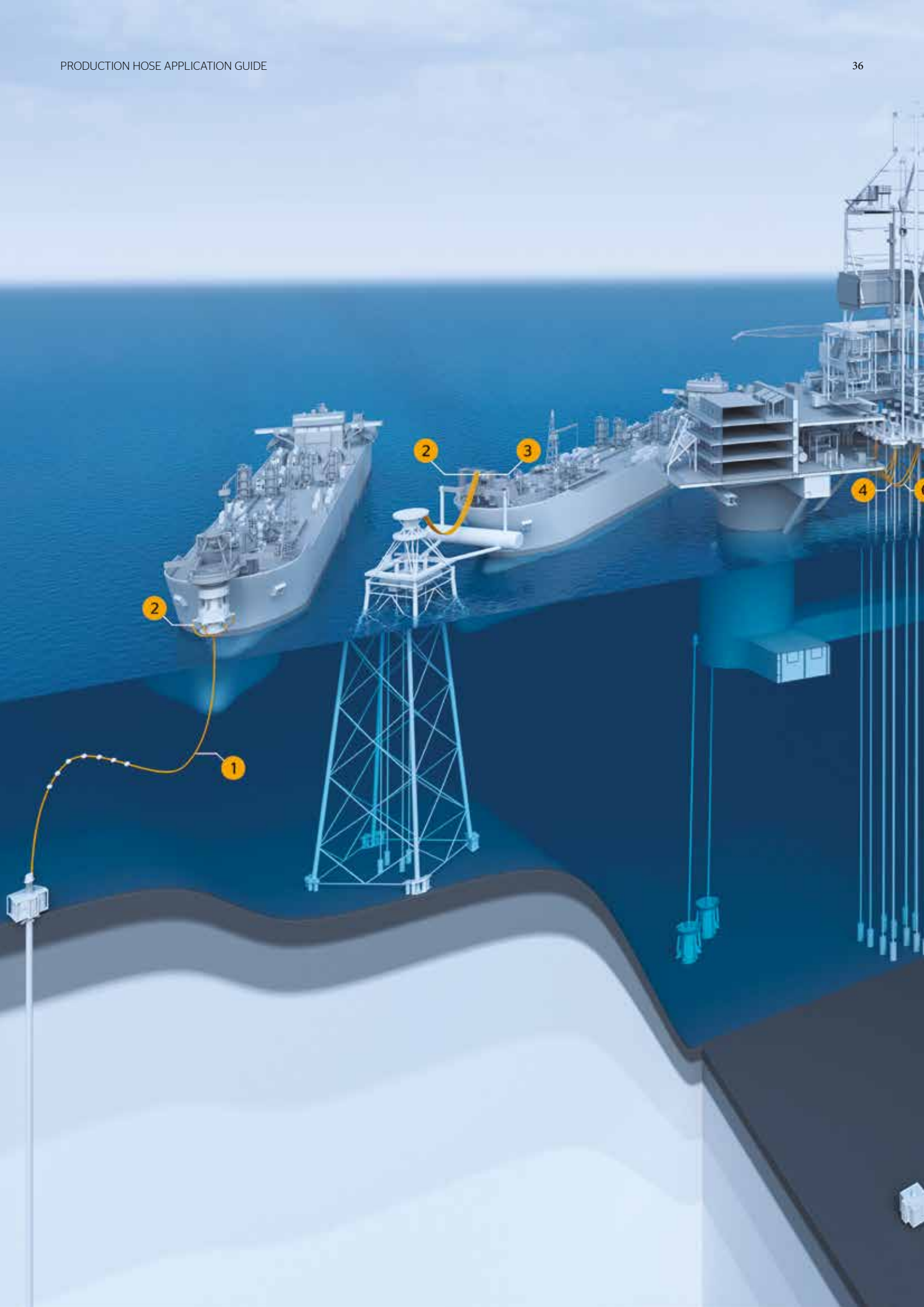
High Pressure Hoses For Production & Offshore Field Development

Bonded & Unbonded Flexible Pipes

Flexible pipes can be manufactured as either a bonded or unbonded construction. Continental's bonded construction consists of multiple layers of rubber and steel vulcanized into one hose body, whereas an unbonded pipe has separate layers of plastic and steel.

Both constructions are accepted worldwide and recognized in all relevant API standards, however there are some significant differences.

Title Name	Bonded Flexible Pipe	Unbonded Flexible Pipe
Flexibility in design	Wide choice of polymer and reinforcement materials	Limited choice of polymer and reinforcement materials
High temperature resistance	Chemically crosslinked, resists temperature shocks as rubber does not melt	Liner and cover can melt at elevated temperature
Creep	No liner creep	Liner creeps, especially at elevated temperature
Annulus	No annulus	Annulus can be flooded, in case of cover damage
Corrosion resistance	Reinforcement fully embedded in rubber, good corrosion resistance	Reinforcement maybe exposed to fluid in the annulus, compromised corrosion resistance
Fatigue resistance	Excellent fatigue resistance	Compromised fatigue resistance, especially in the presence of H_2S in the conveyed fluid
Flexibility	Inherent flexibility, low bending radius	Less flexible, larger bending radius
Variable bending stiffness	Bending stiffness can be varied along the pipe	Bending stiffness cannot be varied along the pipe
Preforming	Possibility of patented preforming to desired shape (TauroFit), resulting in extreme low MBR	Preforming is not possible
Coupling	Simple, chemically bonded coupling	Complicated coupling, no chemical bond between liner and coupling
Sealing mechanism	Sealing by rubber to metal bond	Mechanical sealing
Neck reinforcement	Built-in neck reinforcement	No neck reinforcement, often external bend stiffener is necessary
Length	Produced in multiple sections, with patented splicing technology available in some sizes	Produced in long lengths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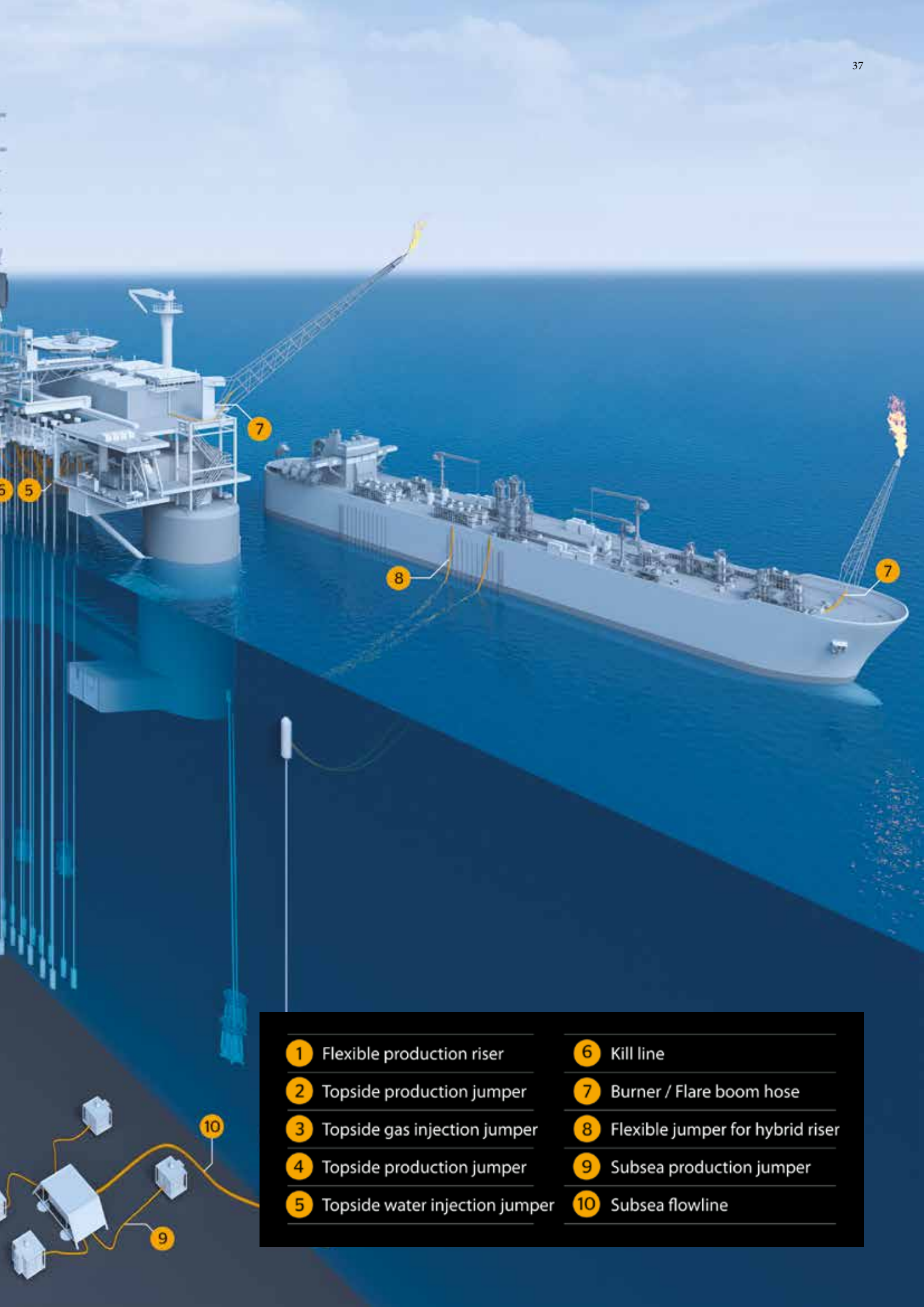

1 Flexible production riser
2 Topside production jumper
3 Topside gas injection jumper
4 Topside production jumper
5 Topside water injection jumper
6 Kill line
7 Burner / Flare boom hose
8 Flexible jumper for hybrid riser
9 Subsea production jumper
10 Subsea flowline

General Information
Products for production & offshore field development

- The hoses listed in this catalogue are only the most common constructions, for special requirements contact us
- Constructions rated above 90°C are available upon request
- Alternative liner materials are available for the different applications: HNBR, PA and TauroFlon™ . For chemical compatibility comparison see page 46.
- Prod. Length Tolerance: Up to 6.4 m hose length +/– 64 mm
Above 6.4 m hose length +/– 1 %
- Minimum Bending Radius (MBR) is with reference to the centre-line of the hose
- Maximum recommended flow velocities: 20 m/s for dry gas
15 m/s for liquid,
8 m/s for gaseous liquid
- Fire rating available at 1300 °F (704°C) for 30 minutes on request for all hoses with bonded couplings. It complies with both Lloyd's Register OD 1000/499 and API 16C requirements
- Additional external protection available upon request

Safety Clamp and Lifting Collar Fitting Instructions

Each hose is marked on the outer cover at each end with text "ATTACH SAFETY CLAMP HERE". This band signifies the location for the safety clamps. The safety clamps should be positioned with one edge towards the middle of the hose (i.e. away from the coupling). Once correctly positioned, the safety clamp should be fastened in position with the nuts and bolts.

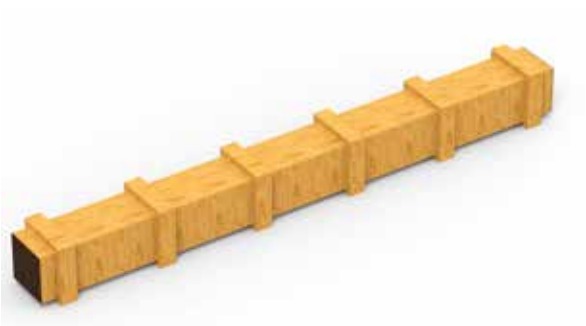
The lifting equipment supplied with the hoses includes a two-part lifting device at each hose end. These lifting devices, called element C's, are supplied loose and not pre-assembled to the hose due to packaging limitations and safety reasons. The normal procedure for handling and lifting the hose involves securing the lifting collar around the element C. The hose is then lifted via attachment of the lifting line to the lifting collar. After installation, the lifting collar and element C can be left on the hose together or both removed if preferred. Safety Clamps and Chains are fully compliant with API RP 7L with proof load certification. All lifting collars are supplied with SWL certification.

Transportation

We transport our products mainly on road, by rail or by ship to their destination, however air freight is also possible. Method of packaging depending on the diameter and length of hose can be as follows:

- Short units: in straight position: on pallets or in wooden crates
- Long units: reeled onto drum, on pallets or in wooden crates

Note: For more detailed information please request a copy of the Continental User Guide for High Pressure Flexible Lines.



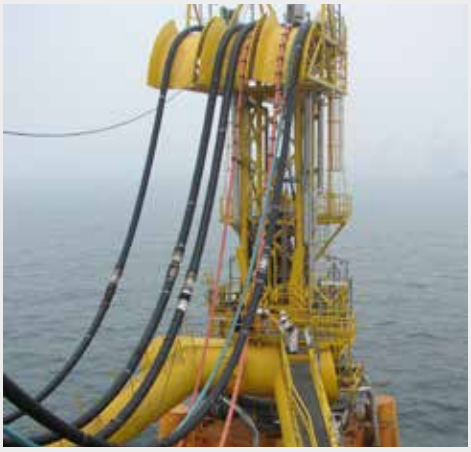
Topside Jumpers
for gas service

Production, gas injection, gas lift, gas export, FLNG high pressure import, FSRU high pressure export

Standard
API Spec. 17K

Construction

Bore type	full flow, rough bore
Liner type	H_2S resistant HNBR or PA
Operating temperature	-30°C to +90°C (-22°F to 194°F)
Max. available length	60m (200ft) up to 8"
	30m (100ft) up to 16"



Features & Comments
- Cathodic protection is available upon request
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition
- Material of the end fittings is either carbon steel or duplex
- Material of the internal carcass is either 316L or 254 SMO

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (static)		MBR (dynamic)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
53	2.0	Fire rated	345	5,000	517	7,500	2.25	168	6.6	1.0	3.3	1.4	4.6	49	33
		Fire rated c/w st. st. wrap						174	6.9	1.0	3.3	1.4	4.6	55	37
		Fire rated	517	7,500	776	11,250	2.25	163	6.4	1.3	4.3	1.8	5.9	47	32
		Fire rated c/w st. st. wrap						174	6.9	1.3	4.3	1.8	5.9	53	36
65	2.5	Fire rated	345	5,000	517	7,500	2.25	180	7.1	1.0	3.2	1.4	4.6	54	36
		Fire rated c/w st. st. wrap						191	7.5	1.0	3.3	1.4	4.6	62	42
		Fire rated	517	7,500	776	11,250	2.25	176	6.9	1.4	4.6	1.8	5.9	52	35
		Fire rated c/w st. st. wrap						187	7.4	1.4	4.6	1.8	5.9	60	40
78	3.0	Fire rated	345	5,000	517	7,500	2.25	197	7.8	1.2	3.9	1.7	5.6	65	44
		Fire rated c/w st. st. wrap						208	8.2	1.2	3.9	1.7	5.6	73	49
		Fire rated	517	7,500	776	11,250	2.25	190	7.5	1.5	4.9	2.0	6.6	61	41
		Fire rated c/w st. st. wrap						202	8.0	1.5	4.9	2.0	6.6	69	46
92	3.5	Fire rated	345	5,000	517	7,500	2.25	211	8.3	1.4	4.6	1.8	5.9	72	48
		Fire rated c/w st. st. wrap						222	8.7	1.4	4.6	1.8	5.9	81	54
		Fire rated	517	7,500	776	11,250	2.25	204	8.0	1.7	5.6	2.2	7.2	68	46
		Fire rated c/w st. st. wrap						216	8.5	1.7	5.6	2.2	7.2	78	52
104	4.0	Fire rated	345	5,000	517	7,500	2.25	223	8.8	1.5	4.9	2.0	6.6	79	53
		Fire rated c/w st. st. wrap						239	9.4	1.5	4.9	2.0	6.6	91	61
		Fire rated	517	7,500	776	11,250	2.25	214	8.4	1.8	5.9	2.3	7.5	73	49
		Fire rated c/w st. st. wrap						226	8.9	1.8	5.9	2.3	7.5	82	55
130	5.0	Fire rated	345	5,000	517	7,500	2.25	252	9.9	1.6	5.3	2.1	6.9	97	65
		Fire rated c/w st. st. wrap						269	10.6	1.6	5.3	2.1	6.9	107	72
152	6.0	Fire rated	345	5,000	518	7,500	2.25	278	10.9	1.9	6.2	2.6	8.5	112	75
		Fire rated c/w st. st. wrap						291	11.5	1.9	6.2	2.6	8.5	124	83
178	7.0	Fire rated	293	4,250	440	6,375	2.25	299	11.8	2.2	7.2	2.9	9.5	117	79
		Fire rated c/w st. st. wrap						312	12.3	2.2	7.2	2.9	9.5	135	91
207	8.0	Fire rated	259	3,750	389	5,625	2.25	331	13.0	2.4	7.9	3.2	10.5	139	93
		Fire rated c/w st. st. wrap						346	13.6	2.4	7.9	3.2	10.5	156	105
255	10.0	Fire rated	155	2,250	233	3,375	2.25	383	15.1	2.6	8.5	3.5	11.5	168	113
		Fire rated c/w st. st. wrap						394	15.5	2.6	8.5	3.5	11.5	184	124
303	12.0	Fire rated	155	2,250	233	3,375	2.25	430	16.9	2.8	9.2	3.8	12.5	194	130
		Fire rated c/w st. st. wrap						442	17.4	2.8	9.2	3.8	12.5	212	143
327	13.0	Fire rated	103	1,500	155	2,250	2.25	454	17.9	3.0	9.8	4.1	13.5	207	139
		Fire rated c/w st. st. wrap						466	18.4	3.0	9.8	4.1	13.5	226	152
352	14.0	Fire rated	86	1,250	129	1,875	2.25	477	18.8	3.2	10.5	4.4	14.4	215	145
		Fire rated c/w st. st. wrap						489	19.3	3.2	10.5	4.4	14.4	224	151

Topside Jumpers
for liquid service

Water injection, firewater, oil transfer and other liquid service

Standard
API Spec. 17K

Construction

Bore type	full flow, rough bore
Liner type	H_2S resitant HNBR or PA
Operating temperature	-30°C to +90°C (-22°F to 194°F)
Max. available length	60m (200ft) up to 8"
	30m (100ft) up to 16"

Features & Comments

- Cathodic protection is available upon request
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition
- Material of the end fittings is either carbon steel or duplex
- Material of the internal carcass is either 316L or 254 SMO

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (static)		MBR (dynamic)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
53	2.0	Standard	517	7,500	776	11,250	2.25	148	5.8	0.9	3.0	1.2	3.9	39	26
		Standard c/w st. st. wrap						158	6.2	0.9	3.0	1.2	3.9	44	30
		Fire rated						168	6.6	1.0	3.3	1.4	4.6	49	33
		Fire rated c/w st. st. wrap						174	6.6	1.0	3.3	1.4	4.6	55	37
		Standard	690	10,000	1035	15,000	2.25	165	6.5	1.3	4.3	1.7	5.6	57	38
		Standard c/w st. st. wrap						176	6.9	1.3	4.3	1.7	5.6	64	43
		Fire rated						185	7.3	1.4	4.6	1.8	5.9	67	45
		Fire rated c/w st. st. wrap						197	7.8	1.4	4.6	1.8	5.9	75	50
78	3.0	Standard	517	7,500	776	11,250	2.25	176	6.9	1.1	3.6	1.5	4.9	54	36
		Standard c/w st. st. wrap						188	7.4	1.1	3.6	1.5	4.9	62	42
		Fire rated						197	7.8	1.2	3.9	1.7	5.6	65	44
		Fire rated c/w st. st. wrap						208	8.2	1.2	3.9	1.7	5.6	73	49
		Standard	690	10,000	1035	15,000	2.25	193	7.6	1.5	4.9	2.0	6.6	75	50
		Standard c/w st. st. wrap						205	8.1	1.5	4.9	2.0	6.6	83	56
		Fire rated						214	8.4	1.6	5.3	2.1	6.9	86	58
		Fire rated c/w st. st. wrap						225	8.9	1.6	5.3	2.1	6.9	95	64
104	4.0	Standard	517	7,500	776	11,250	2.25	202	8.0	1.4	4.6	1.8	5.9	67	45
		Standard c/w st. st. wrap						214	8.4	1.4	4.6	1.8	5.9	75	50
		Fire rated						223	8.8	1.5	4.9	2.0	6.6	79	53
		Fire rated c/w st. st. wrap						239	9.4	1.5	4.9	2.0	6.6	91	61
		Standard	690	10,000	1035	15,000	2.25	218	8.6	1.8	5.9	2.4	7.9	89	60
		Standard c/w st. st. wrap						229	9.0	1.8	5.9	2.4	7.9	98	66
		Fire rated						239	9.4	1.9	6.2	2.6	8.5	102	69
		Fire rated c/w st. st. wrap						251	9.9	1.9	6.2	2.6	8.5	112	75
130	5.0	Standard	517	7,500	776	11,250	2.25	231	9.1	1.5	4.9	2.0	6.6	83	56
		Standard c/w st. st. wrap						243	9.6	1.5	4.9	2.0	6.6	92	62
		Fire rated						252	9.9	1.6	5.3	2.1	6.9	97	65
		Fire rated c/w st. st. wrap						279	11.0	1.6	5.3	2.1	6.9	107	72
152	6.0	Standard	517	7,500	776	11,250	2.25	257	10.1	1.8	5.9	2.4	7.9	96	65
		Standard c/w st. st. wrap						269	10.6	1.8	5.9	2.4	7.9	106	71
		Fire rated						278	10.9	1.9	6.2	2.6	8.5	112	75
		Fire rated c/w st. st. wrap						289	11.4	1.9	6.2	2.6	8.5	123	83
207	8.0	Standard	345	5,000	518	7,500	2.25	311	12.2	2.2	7.2	2.9	9.5	121	81
		Standard c/w st. st. wrap						325	12.8	2.2	7.2	2.9	9.5	136	91
		Fire rated						331	13.0	2.4	7.9	3.2	10.5	139	93
		Fire rated c/w st. st. wrap						346	13.6	2.4	7.9	3.2	10.5	156	105
255	10.0	Standard	241	3,500	362	5,250	2.25	362	14.3	2.5	8.2	3.3	10.8	146	98
		Standard c/w st. st. wrap						374	14.7	2.5	8.2	3.3	10.8	161	108
		Fire rated						383	15.1	2.6	8.5	3.5	11.5	168	113
		Fire rated c/w st. st. wrap						394	15.5	2.6	8.5	3.5	11.5	184	124
303	12.0	Standard	241	3,500	362	5,250	2.25	410	16.1	2.7	8.9	3.6	11.8	169	114
		Standard c/w st. st. wrap						421	16.6	2.7	8.9	3.6	11.8	186	125
		Fire rated						430	16.9	2.8	9.2	3.8	12.5	194	130
		Fire rated c/w st. st. wrap						442	17.4	2.8	9.2	3.8	12.5	212	143
352	14.0	Standard	207	3,000	310	4,500	2.25	457	18	3.1	10.2	4.2	13.8	193	129
		Standard c/w st. st. wrap						465	18.3	3.1	10.2	4.2	13.8	210	141
		Fire rated						481	19	3.4	11.2	4.6	15.1	223	150
		Fire rated c/w st. st. wrap						487	19.2	3.4	11.2	4.6	15.1	241	162

Ship-to-Shore
natural gas transfer lines

A flexible solution for FSRU gas export and FLNG gas import lines

Standard
API Spec. 17K

Construction

Bore type	full flow, rough bore
Liner type	H_2S resistant HNBR
Operating temperature	-30°C to +90°C (-22°F to 194°F)
Max. available length	60m (200ft) up to 8"
	30m (100ft) up to 14"

Features & Comments

- Hoses to be fire rated to 1300°F (704°C) for 30 minutes complying with both Lloyd's register OD 1000/499 and API 16C requirements.
- Additional external protection available upon request
- The hoses are equipped with built-in bend stiffener at the nect area to protect against overbending
- Diffused gases are vented with a patented gas venting technology
- Coupling materials meet NACE MR 0175/ISO 15156 latest edition
- Material of the end fittings is either carbon steel or duplex
- Material of the internal carcass is either 316L or 254SMO
- Finite Element Analysis capability to check survival and fatigue conditions

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (static)		MBR (dynamic)		Weight	
mm	in		bar	psi	bar	psi	(• WP)	mm	in	m	ft	m	ft	kg/m	lb/ft
53	2.0	Fire rated	345	5,000	517	7,500	2.25	168	6.61	1.0	3.28	1.4	4.59	49	32.9
		Fire rated c/w st. st. wrap						174	6.85	1.0	3.28	1.4	4.59	55	37.0
65	2.5	Fire rated	345	5,000	517	7,500	2.25	180	7.09	1.0	3.28	1.4	4.59	54	36.3
		Fire rated c/w st. st. wrap						191	7.52	1.0	3.28	1.4	4.59	62	41.7
78	3.0	Fire rated	345	5,000	517	7,500	2.25	197	7.76	1.2	3.94	1.7	5.58	65	43.7
		Fire rated c/w st. st. wrap						208	8.19	1.2	3.94	1.7	5.58	73	49.1
92	3.5	Fire rated	345	5,000	517	7,500	2.25	211	8.31	1.4	4.59	1.8	5.90	72	48.4
		Fire rated c/w st. st. wrap						222	8.74	1.4	4.59	1.8	5.90	81	54.4
104	4.0	Fire rated	345	5,000	517	7,500	2.25	223	8.78	1.5	4.92	2.0	6.56	79	53.1
		Fire rated c/w st. st. wrap						239	9.41	1.5	4.92	2.0	6.56	91	61.1
130	5.0	Fire rated	345	5,000	517	7,500	2.25	252	9.92	1.6	5.25	2.1	6.89	97	65.2
		Fire rated c/w st. st. wrap						269	10.59	1.6	5.25	2.1	6.89	107	71.9
152	6.0	Fire rated	345	5,000	518	7,500	2.25	278	10.94	1.9	6.23	2.6	8.53	112	75.3
		Fire rated c/w st. st. wrap						291	11.46	1.9	6.23	2.6	8.53	124	83.3
178	7.0	Fire rated	293	4,250	440	6,375	2.25	299	11.77	2.2	7.22	2.9	9.51	117	78.6
		Fire rated c/w st. st. wrap						312	12.28	2.2	7.22	2.9	9.51	135	90.7
207	8.0	Fire rated	259	3,750	389	5,625	2.25	331	13.03	2.4	7.87	3.2	10.50	139	93.4
		Fire rated c/w st. st. wrap						346	13.62	2.4	7.87	3.2	10.50	156	104.8
255	10.0	Fire rated	155	2,250	233	3,375	2.25	383	15.08	2.6	8.53	3.5	11.48	168	112.9
		Fire rated c/w st. st. wrap						394	15.51	2.6	8.53	3.5	11.48	184	123.6
303	12.0	Fire rated	155	2,250	233	3,375	2.25	430	16.93	2.8	9.18	3.8	12.46	194	130.4
		Fire rated c/w st. st. wrap						442	17.40	2.8	9.18	3.8	12.46	212	142.5
327	13.0	Fire rated	103	1,500	155	2,250	2.25	454	17.87	3.0	9.84	4.1	13.45	207	139.1
		Fire rated c/w st. st. wrap						466	18.35	3.0	9.84	4.1	13.45	226	151.9
352	14.0	Fire rated	86	1,250	129	1,875	2.25	477	18.78	3.2	10.50	4.4	14.43	215	144.5
		Fire rated c/w st. st. wrap						489	19.25	3.2	10.50	4.4	14.43	224	150.5

Kill Lines

Tension Leg Patform (TLP) wellheads, SPAR platform wellheads, well testing

Standard

API Spec. 16C - up to FSL 3

Construction

Bore type	full flow, rough bore	full flow, smooth bore
Liner type	H_2S resistant TauroFlon™	H_2S resistant PA
Operating temperature	-20°C to +130°C (-4°F to 266°F)	-18°C to +100°C (0°F to 212°F)
Max. available length	40m (131ft)	60m (200ft)

Features & Comments

- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition
- See Flexible Tauro™Fit Choke & Kill Lines for subsea BOPs for kill lines with extremely small MBRs
- For hoses with TauroFlon™ liner, longer lengths are available upon request

Technical Data

As per API Spec 16C with TauroFlon™ lining

Inside Diameter mm	Inside Diameter in	Type	Rated Working Pressure bar	Rated Working Pressure psi	Test Pressure bar	Test Pressure psi	Safety Factor (WP)	Outer Diameter mm	Outer Diameter in	MBR (operation) m	MBR (operation) ft	Weight kg/m	Weight lb/ft
53	2.0	Fire rated	345	5,000	517	7,500	2.25	159	6.3	0.9	3.0	46	31
		Fire rated c/w st. st. Wrap						165	6.5	0.9	3.0	52	35
		Fire rated	690	10,000	1,035	15,000	2.25	159	6.3	0.8	2.6	46	31
		Fire rated c/w st. st. Wrap						165	6.5	0.8	2.6	52	35
		Fire rated	1,035	15,000	1,552	22,500	2.25	188	7.4	1.3	4.3	79	53
		Fire rated c/w st. st. Wrap						194	7.6	1.3	4.3	86	58
65	2.5	Fire rated	345	5,000	517	7,500	2.25	172	6.8	1.0	3.3	52	35
		Fire rated c/w st. st. Wrap						178	7.0	1.0	3.3	59	40
		Fire rated	690	10,000	1,035	15,000	2.25	172	6.8	1.0	3.3	52	35
		Fire rated c/w st. st. Wrap						178	7.0	1.0	3.3	59	40
		Fire rated	1,035	15,000	1,552	22,500	2.25	202	8.0	1.4	4.6	88	59
		Fire rated c/w st. st. Wrap						207	8.2	1.4	4.6	96	65
78	3.0	Fire rated	345	5,000	517	7,500	2.25	202	8.0	1.0	3.3	88	59
		Fire rated c/w st. st. Wrap						207	8.2	1.0	3.3	96	65
		Fire rated	690	10,000	1,035	15,000	2.25	202	8.0	1.0	3.3	88	59
		Fire rated c/w st. st. Wrap						207	8.2	1.0	3.3	96	65
		Fire rated	1,035	15,000	1,552	22,500	2.25	218	8.6	1.5	4.9	103	69
		Fire rated c/w st. st. Wrap						223	8.8	1.5	4.9	111	75
104	4.0	Fire rated	345	5,000	517	7,500	2.25	237	9.3	1.5	4.9	104	70
		Fire rated c/w st. st. Wrap						243	9.6	1.5	4.9	112	75
		Fire rated	690	10,000	1,035	15,000	2.25	237	9.3	1.5	4.9	104	70
		Fire rated c/w st. st. Wrap						243	9.6	1.5	4.9	112	75

As per API Spec 16C with PA lining

Inside Diameter mm	Inside Diameter in	Type	Rated Working Pressure bar	Rated Working Pressure psi	Test Pressure bar	Test Pressure psi	Safety Factor (WP)	Outer Diameter mm	Outer Diameter in	MBR (operation) m	MBR (operation) ft	Weight kg/m	Weight lb/ft
51	2.0	Fire rated	345	5,000	517	7,500	2.25	128	5.0	0.9	3.0	29	20
		Fire rated c/w st. st. Wrap						133	5.2	0.9	3.0	35	24
		Fire rated	690	10,000	1,035	15,000	2.25	128	5.0	0.9	3.0	29	20
		Fire rated c/w st. st. Wrap						133	5.2	0.9	3.0	35	24
		Fire rated	1,035	15,000	1,552	22,500	2.25	150	5.9	1.2	3.9	46	31
		Fire rated c/w st. st. Wrap						156	6.1	1.2	3.9	53	36
64	2.5	Fire rated	345	5,000	517	7,500	2.25	141	5.6	1.0	3.3	34	23
		Fire rated c/w st. st. Wrap						147	5.8	1.0	3.3	39	26
		Fire rated	690	10,000	1,035	15,000	2.25	141	5.6	1.0	3.3	34	23
		Fire rated c/w st. st. Wrap						147	5.8	1.0	3.3	39	26
		Fire rated	1,035	15,000	1,552	22,500	2.25	164	6.5	1.4	4.6	53	36
		Fire rated c/w st. st. Wrap						173	6.8	1.4	4.6	59	40
76	3.0	Fire rated	345	5,000	517	7,500	2.25	155	6.1	1.0	3.3	39	26
		Fire rated c/w st. st. Wrap						161	6.3	1.0	3.3	45	30
		Fire rated	690	10,000	1,035	15,000	2.25	155	6.1	1.0	3.3	39	26
		Fire rated c/w st. st. Wrap						161	6.3	1.0	3.3	45	30
		Fire rated	1,035	15,000	1,552	22,500	2.25	178	7.0	1.7	5.6	59	40
		Fire rated c/w st. st. Wrap						184	7.2	1.7	5.6	66	44
102	4.0	Fire rated	345	5,000	517	7,500	2.25	232	9.1	1.5	4.9	98	66
		Fire rated c/w st. st. Wrap						237	9.3	1.5	4.9	107	72
		Fire rated	690	10,000	1,035	15,000	2.25	232	9.1	1.5	4.9	98	66
		Fire rated c/w st. st. Wrap						237	9.3	1.5	4.9	107	72

Tauro™Fit Preformed Production Lines

Standard
API Spec. 17K

Construction

Bore type	full flow, rough bore
Liner type	H_2S resistant HNBR
Shape	preformed
Operating temperature	-30°C to +90°C (-22°F to 194°F)

Features & Comments

- Further sizes are available upon request
- Easy installation in confined spaces
- Extended service life as a result of reduced risk of over-bending and reduced stress on hose body and on coupling
- Transfers less load to adjacent equipment or pipe work
- Short coupling design increases flexible length with no reduction in bonding strength
- Opens up new design opportunities to reduce the size and weight of oil field equipment
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition
- Material of the end fittings is either carbon steel or duplex
- Material of the internal carcass is either 316L or 254 SMO

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Outer Diameter		MBR (operation)		Weight	
mm	in		bar	psi	bar	psi	(WP)	mm	in	m	ft	kg/m	lb/ft
102	4.0	Standard	138	2,000	207	3,000	2.25	182	7.2	0.6	2.0	41	28
		Standard c/w st. st. wrap						188	7.4	0.6	2.0	48	32
		Fire rated						203	8.0	0.6	2.0	52	35
		Fire rated c/w st. st. wrap						209	8.2	0.6	2.0	60	40
127	5.0	Standard	138	2,000	276	3,000	2.25	209	8.2	0.7	2.3	49	33
		Standard c/w st. st. wrap						214	8.4	0.7	2.3	57	38
		Fire rated						229	9.0	0.7	2.3	62	42
		Fire rated c/w st. st. wrap						235	9.3	0.7	2.3	70	47
152	6.0	Standard	138	2,000	276	3,000	2.25	238	9.4	0.8	2.6	60	40
		Standard c/w st. st. wrap						244	9.6	0.8	2.6	69	46
		Fire rated						258	10.2	0.8	2.6	74	50
		Fire rated c/w st. st. wrap						264	10.4	0.8	2.6	84	56

Subsea Jumpers, Flowlines & Tie-ins
for gas service

Production, gas injection, gas lift, gas export

Standard
API Spec. 17K

Construction

Bore type	full flow, rough bore
Liner type	H_2S resistant HNBR or PA
Operating temperature	-30°C to +90°C (-22°F to 194°F)
Max. available length	60m (200ft) up to 8"
	30m (100ft) up to 16"

Features & Comments

- Cathodic protection is available upon request
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition
- Material of the end fittings is either carbon steel or duplex
- Material of the internal carcass is either 316L or 254 SMO
- Easier installation compared to rigid spools as no metrology and onshore fabrication is necessary resulting in less vessel time

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Max water depth		Outer Diameter		MBR (static)		MBR (dynamic)		Weight	
mm	in		bar	psi	bar	psi	(WP)	m	ft	mm	in	m	ft	m	ft	kg/m	lb/ft
53	2.0	Standard	345	5,000	514	7,500	2.25	195C	6390	148	5.8	0.9	3.0	1.2	3.9	39	26
		Standard c/w st. st. wrap								158	6.2	0.9	3.0	1.2	3.9	44	30
		Standard	517	7,500	776	11,250	2.25	325C	10660	143	5.6	1.2	3.9	1.7	5.6	38	26
		Standard c/w st. st. wrap								153	6.0	1.2	3.9	1.7	5.6	42	28
65	2.5	Standard	345	5,000	517	7,500	2.25	130C	4260	159	6.3	0.9	3.0	1.2	3.9	44	30
		Standard c/w st. st. wrap								171	6.7	0.9	3.0	1.2	3.9	51	34
		Standard	517	7,500	776	11,250	2.25	225C	7380	155	6.1	1.3	4.3	1.8	5.9	43	29
		Standard c/w st. st. wrap								167	6.6	1.3	4.3	1.8	5.9	49	33
78	3.0	Standard	345	5,000	517	7,500	2.25	260C	8530	176	6.9	1.1	3.6	1.5	4.9	54	36
		Standard c/w st. st. wrap								188	7.4	1.1	3.6	1.5	4.9	62	42
		Standard	517	7,500	776	11,250	2.25	170C	5570	170	6.7	1.4	4.6	1.8	5.9	51	34
		Standard c/w st. st. wrap								182	7.2	1.4	4.6	1.8	5.9	58	39
92	3.5	Standard	345	5,000	517	7,500	2.25	175C	5740	190	7.5	1.2	3.9	1.7	5.6	60	40
		Standard c/w st. st. wrap								202	8.0	1.2	3.9	1.7	5.6	68	46
		Standard	517	7,500	776	11,250	2.25	180C	5900	184	7.2	1.6	5.3	2.1	6.9	57	38
		Standard c/w st. st. wrap								196	7.7	1.6	5.3	2.1	6.9	66	44
104	4.0	Standard	345	5,000	517	7,500	2.25	175C	5740	202	8.0	1.4	4.6	1.8	5.9	67	45
		Standard c/w st. st. wrap								214	8.4	1.4	4.6	1.8	5.9	75	50
		Standard	517	7,500	776	11,250	2.25	180C	5900	194	7.6	1.7	5.6	2.2	7.2	61	41
		Standard c/w st. st. wrap								206	8.1	1.7	5.6	2.2	7.2	69	46
130	5.0	Standard	345	5,000	517	7,500	2.25	100C	3280	231	9.1	1.5	4.9	2.0	6.6	83	56
		Standard c/w st. st. wrap								243	9.6	1.5	4.9	2.0	6.6	92	62
152	6.0	Standard	345	5,000	517	7,500	2.25	110C	3600	257	10.1	1.8	5.9	2.4	7.9	96	65
		Standard c/w st. st. wrap								269	10.6	1.8	5.9	2.4	7.9	106	71
178	7.0	Standard	293	4,250	440	6,375	2.25	92C	3010	279	11.0	2.0	6.6	2.7	8.9	101	68
		Standard c/w st. st. wrap								291	11.5	2.0	6.6	2.7	8.9	117	79
207	8.0	Standard	259	3,750	389	5,625	2.25	60C	1960	311	12.2	2.2	7.2	2.9	9.5	121	81
		Standard c/w st. st. wrap								325	12.8	2.2	7.2	2.9	9.5	136	91
255	10.0	Standard	155	2,250	233	3,375	2.25	28C	910	362	14.3	2.5	8.2	3.3	10.8	146	98
		Standard c/w st. st. wrap								374	14.7	2.5	8.2	3.3	10.8	161	108
303	12.0	Standard	155	2,250	233	3,375	2.25	19C	620	410	16.1	2.7	8.9	3.6	11.8	169	114
		Standard c/w st. st. wrap								421	16.6	2.7	8.9	3.6	11.8	186	125
327	13.0	Standard	103	1,500	155	2,250	2.25	16C	520	434	17.1	2.9	9.5	3.9	12.8	181	122
		Standard c/w st. st. wrap								445	17.5	2.9	9.5	3.9	12.8	199	134
352	14.0	Standard	86	1,250	129	1,875	2.25	12C	390	457	18.0	3.1	10.2	4.2	13.8	189	127
		Standard c/w st. st. wrap								469	18.5	3.1	10.2	4.2	13.8	196	132

Subsea Jumpers, Flowlines & Tie-ins
for liquid service

Water injection, oil transfer

Standard
API Spec. 17K

Construction

Bore type	full flow, rough bore
Liner type	H_2S resistant HNBR or PA
Operating temperature	-30°C to +90°C (-22°F to 194°F)
Max. available length	60m (200ft) up to 8"
	30m (100ft) up to 16"

Features & Comments

- Cathodic protection is available upon request
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition
- Material of the end fittings is either carbon steel or duplex
- Material of the internal carcass is either 316L or 254 SMO
- Easier installation compared to rigid spools as no metrology and onshore fabrication is necessary resulting in less vessel time

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Max water depth		Outer Diameter		MBR (static)		MBR (dynamic)		Weight	
mm	in		bar	psi	bar	psi	(WP)	m	ft	mm	in	m	ft	m	ft	kg/m	lb/ft
53	2.0	Standard	517	7,500	776	11,250	2.25	1950	6390	148	5.8	0.9	3.0	1.2	3.9	39	26
		Standard c/w st. st. wrap								158	6.2	0.9	3.0	1.2	3.9	44	30
		Standard	690	10,000	1035	15,000	2.25	3250	10660	165	6.5	1.3	4.3	1.7	5.6	57	38
		Standard c/w st. st. wrap								176	6.9	1.3	4.3	1.7	5.6	64	43
65	2.5	Standard	517	7,500	776	11,250	2.25	1300	4260	159	6.3	0.9	3.0	1.2	3.9	44	30
		Standard c/w st. st. wrap								171	6.7	0.9	3.0	1.2	3.9	51	34
		Standard	690	10,000	1035	15,000	2.25	2250	7380	178	7.0	1.4	4.6	1.8	5.9	64	43
		Standard c/w st. st. wrap								190	7.5	1.4	4.6	1.8	5.9	72	48
78	3.0	Standard	517	7,500	776	11,250	2.25	2600	8530	176	6.9	1.1	3.6	1.5	4.9	54	36
		Standard c/w st. st. wrap								188	7.4	1.1	3.6	1.5	4.9	62	42
		Standard	690	10,000	1035	15,000	2.25	1700	5570	193	7.6	1.5	4.9	2.0	6.6	75	50
		Standard c/w st. st. wrap								205	8.1	1.5	4.9	2.0	6.6	83	56
92	3.5	Standard	517	7,500	776	11,250	2.25	1750	5740	190	7.5	1.2	3.9	1.7	5.6	60	40
		Standard c/w st. st. wrap								202	8.0	1.2	3.9	1.7	5.6	68	46
		Standard	690	10,000	1035	15,000	2.25	1800	5900	207	8.2	1.7	5.6	2.2	7.2	83	56
		Standard c/w st. st. wrap								219	8.6	1.7	5.6	2.2	7.2	91	61
104	4.0	Standard	517	7,500	776	11,250	2.25	1750	5740	202	8.0	1.4	4.6	1.8	5.9	67	45
		Standard c/w st. st. wrap								214	8.4	1.4	4.6	1.8	5.9	75	50
		Standard	690	10,000	1035	15,000	2.25	1800	5900	218	8.6	1.8	5.9	2.4	7.9	89	60
		Standard c/w st. st. wrap								229	9.0	1.8	5.9	2.4	7.9	98	66
130	5.0	Standard	517	7,500	776	11,250	2.25	1000	3280	231	9.1	1.5	4.9	2.0	6.6	83	56
		Standard c/w st. st. wrap								243	9.6	1.5	4.9	2.0	6.6	92	62
152	6.0	Standard	517	7,500	776	11,250	2.25	1100	3600	257	10.1	1.8	5.9	2.4	7.9	96	65
		Standard c/w st. st. wrap								269	10.6	1.8	5.9	2.4	7.9	106	71
178	7.0	Standard	345	5,000	518	7,500	2.25	920	3010	279	11.0	2.0	6.6	2.7	8.9	101	68
		Standard c/w st. st. wrap								291	11.5	2.0	6.6	2.7	8.9	117	79
207	8.0	Standard	345	5,000	518	7,500	2.25	600	1960	311	12.2	2.2	7.2	2.9	9.5	121	81
		Standard c/w st. st. wrap								325	12.8	2.2	7.2	2.9	9.5	136	91
255	10.0	Standard	241	3,500	362	5,250	2.25	280	910	362	14.3	2.5	8.2	3.3	10.8	146	98
		Standard c/w st. st. wrap								374	14.7	2.5	8.2	3.3	10.8	161	108
303	12.0	Standard	241	3,500	362	5,250	2.25	190	620	410	16.1	2.7	8.9	3.6	11.8	169	114
		Standard c/w st. st. wrap								421	16.6	2.7	8.9	3.6	11.8	186	125
327	13.0	Standard	207	3,000	311	4,500	2.25	160	520	434	17.1	2.9	9.5	3.9	12.8	181	122
		Standard c/w st. st. wrap								445	17.5	2.9	9.5	3.9	12.8	199	134
352	14.0	Standard	207	3,000	311	4,500	2.25	120	390	457	18.0	3.1	10.2	4.2	13.8	189	127
		Standard c/w st. st. wrap								469	18.5	3.1	10.2	4.2	13.8	196	132

Risers

Dynamic risers, import/export risers

Standard

API Spec. 17K

Construction

Bore type	full flow, rough bore
Liner type	H_2S resistant HNBR or PA
Operating temperature	-30°C to +90°C (-22°F to 194°F)
Max. available length	60m (200ft) up to 8", 30m (100ft) up to 16"

Features & Comments

- Cathodic protection is available upon request
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition
- Material of the end fittings is either carbon steel or duplex
- Material of the internal carcass is either 316L or 254 SMO

Technical Data

Inside Diameter		Type	Rated Working Pressure		Test Pressure		Safety Factor	Max water depth		Max axial load		Outer Diameter		MBR (static)		MBR (dynamic)		Weight	
mm	in		bar	psi	bar	psi	(WP)	m	ft	kN	lbs	mm	in	m	ft	m	ft	kg/m	lb/ft
53	2.0	Standard	345	5,000	514	7500	2.25	1,950	6,390	250	56,200	148	5.83	0.9	2.95	1.2	3.94	39	26.2
		Standard c/w st. st. wrap										158	6.22	0.9	2.95	1.2	3.94	44	29.6
		Standard	517	7,500	776	11,250	2.25	3,250	10,660	280	62,900	165	6.50	1.3	4.26	1.7	5.58	57	38.3
		Standard c/w st. st. wrap										176	6.93	1.3	4.26	1.7	5.58	64	43.0
65	2.5	Standard	345	5,000	517	7,500	2.25	1,300	4,260	300	67,400	159	6.26	0.9	2.95	1.2	3.94	44	29.6
		Standard c/w st. st. wrap										171	6.73	0.9	2.95	1.2	3.94	51	34.3
		Standard	517	7,500	776	11,250	2.25	2,250	7,380	370	83,100	178	7.01	1.4	4.59	1.8	5.90	64	43.0
		Standard c/w st. st. wrap										190	7.48	1.4	4.59	1.8	5.90	72	48.4
78	3.0	Standard	345	5,000	517	7,500	2.25	2,600	8,530	540	121,300	176	6.93	1.1	3.61	1.5	4.92	54	36.3
		Standard c/w st. st. wrap										188	7.40	1.1	3.61	1.5	4.92	62	41.7
		Standard	517	7,500	776	11,250	2.25	1,700	5,570	550	123,600	193	7.60	1.5	4.92	2.0	6.56	75	50.4
		Standard c/w st. st. wrap										205	8.07	1.5	4.92	2.0	6.56	83	55.8
92	3.5	Standard	345	5,000	517	7,500	2.25	1,750	5,740	550	123,600	190	7.48	1.2	3.94	1.7	5.58	60	40.3
		Standard c/w st. st. wrap										202	7.95	1.2	3.94	1.7	5.58	68	45.7
		Standard	517	7,500	776	11,250	2.25	1,800	5,900	550	123,600	207	8.15	1.7	5.58	2.2	7.22	83	55.8
		Standard c/w st. st. wrap										219	8.62	1.7	5.58	2.2	7.22	91	61.1
104	4.0	Standard	345	5,000	517	7,500	2.25	1,750	5,740	600	134,800	202	7.95	1.4	4.59	1.8	5.90	67	45.0
		Standard c/w st. st. wrap										214	8.43	1.4	4.59	1.8	5.90	75	50.4
		Standard	517	7,500	776	11,250	2.25	1,800	5,900	630	141,600	218	8.58	1.8	5.90	2.4	7.87	89	59.8
		Standard c/w st. st. wrap										229	9.02	1.8	5.90	2.4	7.87	98	65.9
130	5.0	Standard	345	5,000	517	7,500	2.25	1,000	3,280	650	146,100	231	9.09	1.5	4.92	2.0	6.56	83	55.8
		Standard c/w st. st. wrap										243	9.57	1.5	4.92	2.0	6.56	92	61.8
152	6.0	Standard	345	5,000	517	7,500	2.25	1,100	3,600	850	191,000	257	10.12	1.8	5.90	2.4	7.87	96	64.5
		Standard c/w st. st. wrap										269	10.59	1.8	5.90	2.4	7.87	106	71.2
178	7.0	Standard	293	4,250	440	6,375	2.25	920	3,010	950	213,500	279	10.98	2.0	6.56	1.7	5.58	101	67.9
		Standard c/w st. st. wrap										291	11.46	2.0	6.56	1.7	5.58	117	78.6
207	8.0	Standard	259	3,750	389	5,625	2.25	600	1,960	1,000	224,800	311	12.24	2.2	7.22	2.9	9.51	121	81.3
		Standard c/w st. st. wrap										325	12.80	2.2	7.22	2.9	9.51	136	91.4
255	10.0	Standard	155	2,250	233	3,375	2.25	280	910	1,000	224,800	362	14.25	2.5	8.20	3.3	10.82	146	98.1
		Standard c/w st. st. wrap										374	14.72	2.5	8.20	3.3	10.82	161	108.2
303	12.0	Standard	155	2,250	233	3,375	2.25	190	620	1,000	224,800	410	16.14	2.7	8.86	3.6	11.81	169	113.6
		Standard c/w st. st. wrap										421	16.57	2.7	8.86	3.6	11.81	186	125.0
327	13.0	Standard	103	1,500	155	2,250	2.25	160	520	1,000	224,800	434	17.09	2.9	9.51	3.9	12.79	181	121.6
		Standard c/w st. st. wrap										445	17.52	2.9	9.51	3.9	12.79	199	133.7
352	14.0	Standard	86	1,250	129	1,875	2.25	120	390	1,050	236,000	457	17.99	3.1	10.17	4.2	13.78	189	127.0
		Standard c/w st. st. wrap										469	18.46	3.1	10.17	4.2	13.78	196	131.7

Chemical Compatibility Table - °C

Medium	Product Lining				
	Tauro™Cool	NBR	HNBR	PA	TauroFlon™
Crude oil	82°C	100°C	100°C	100°C	130°C
Diesel oil	82°C	100°C	121°C	130°C	130°C
Water based mud	82°C	90°C	90°C	50°C 90°C	130°C
Oil based mud	82°C	100°C	121°C	130°C	130°C
Ester based mud	82°C	90°C			130°C
Xylene			66°C	66°C 100°C	130°C
Methanol	NR	25°C 40°C	25°C	50°C 90°C	130°C
Glycol	70°C	70°C	70°C	70°C	100°C
Hydrogen sulphide (<20%)			60°C 90°C	130°C	130°C
Zinc bromide (40%)	30°C 82°C	30°C 90°C	30°C 50°C	25°C 50°C	130°C
Zinc bromide (saturated)	30°C	30°C	30°C 50°C	25°C 50°C	130°C
Calcium bromide (25%)	30°C 50°C	30°C 50°C	90°C	50°C 90°C	130°C
Calcium bromide (saturated)	30°C 50°C	30°C 50°C	90°C	50°C 90°C	130°C
Cesium formate (saturated)	82°C	100°C	100°C 121°C	50°C 100°C	130°C
Potassium formate (75%)	82°C	100°C	100°C 121°C	50°C 100°C	130°C
Acetic acid (20%)	82°C	90°C	90°C	50°C 90°C	130°C
Acetic acid (96%)	50°C	50°C 90°C	50°C 90°C	25°C 50°C	130°C
Formic acid	50°C 82°C	30°C 50°C	50°C 90°C	25°C 50°C	130°C
Hydrochloric acid (15%)	60°C 82°C	60°C 90°C	30°C 60°C	25°C 50°C	130°C
Hydrochloric acid (37%)	30°C	30°C	30°C	NR	130°C
Hydrofluoric acid (3%)	30°C	NR	30°C	25°C 60°C	130°C
Hydrofluoric acid (10%)	NR	NR	30°C	25°C 60°C	130°C
Sodium hydroxide (20%)				50°C	66°C
Produced water	82°C	100°C	121°C	50°C 90°C	130°C

Key: max. operating temperature for unlimited application max. operating temperature for limited application NR - not recommended

Chemical Compatibility Table - °F

Medium	Product Lining				
	Tauro™Cool	NBR	HNBR	PA	TauroFlon™
Crude oil	180°F	212°F	212°F	212°F	266°F
Diesel oil	180°F	212°F	250°F	266°F	266°F
Water based mud	180°F	200°F	200°F	122°F 200°F	266°F
Oil based mud	180°F	212°F	250°F	266°F	266°F
Ester based mud	180°F	200°F			266°F
Xylene			150°F	150°F 212°F	266°F
Methanol	NR	75°F 100°F	75°F	122°F 200°F	266°F
Glycol	160°F	160°F	160°F	160°F	212°F
Hydrogen sulphide (<20%)			140°F 200°F	266°F	266°F
ZInc bromide (40%)	90°F 180°F	90°F 200°F	90°F 122°F	75°F 122°F	266°F
Zinc bromide (saturated)	90°F	90°F	90°F 122°F	125°F 122°F	266°F
Calcium bromide (25%)	90°F 122°F	90°F 122°F	200°F	122°F 200°F	266°F
Calcium bromide (saturated)	90°F 122°F	90°F 122°F	200°F	122°F 200°F	266°F
Cesium formate (saturated)	180°F	212°F	212°F 250°F	122°F 212°F	266°F
Potassium formate (75%)	180°F	212°F	212°F 250°F	122°F 212°F	266°F
Acetic acid (20%)	180°F	200°F	200°F	122°F 200°F	266°F
Acetic acid (96%)	122°F	122°F 200°F	122°F 200°F	75°F 122°F	266°F
Formic acid	122°F 180°F	90°F 122°F	122°F 200°F	75°F 122°F	266°F
Hydrochloric acid (15%)	140°F 180°F	140°F 200°F	90°F 140°F	75°F 122°F	266°F
Hydrochloric acid (37%)	90°F	90°F	90°F	NR	266°F
Hydrofluoric acid (3%)	90°F	NR	90°F	75°F 140°F	266°F
Hydrofluoric acid (10%)	NR	NR	90°F	75°F 140°F	266°F
Sodium hydroxide (20%)				122°F	150°F
Produced water	180°F	212°F	250°F	122°F 200°F	250°F

Key: max. operating temperature for unlimited application max. operating temperature for limited application NR - not recommended

Hose Management Services
tailored, expert solutions for the maintenance of your flexible hose assemblies

Ensuring the safe and reliable operation of your flexible hose assemblies, whether in offshore or onshore installations, is essential. Effective hose management not only ensures your operation will continue to run smoothly, but will also eliminate any potential safety or environmental issues and reduce downtime to keep your productivity levels high.

Continental is a world leader in the manufacture of high-pressure drilling and bonded production hoses, crude oil transfer hoses as well as utility and hydraulic assemblies designed specifically for the oil and gas industry. Our expertise and knowledge in this field is unrivalled. With this in-depth capability we have helped to develop the industry standards and guidelines for best practice in the field of integrity management for flexible hose assemblies.

International oil and gas producers and operators across the globe rely on Continental throughout the lifecycle of their flexible hose assemblies, from design and specification through supply to full management of their fluid transfer systems in operation.

We can help you with a number of services, all designed to offer you peace of mind as standard. These are:

Inspection, Testing & Repair
A complete range of inspection and testing services – including:
- inspection and repair of external protection, rubber cover and end fitting painting
- high pressure hydrostatic testing,
- boroscope inspection of the internal carcass or liner
- recertification

Test and inspection can be carried out in dedicated facilities in a number of strategic locations worldwide, or we can come to your preferred location. In addition, we inspect and maintain reeling systems, such as bunker stations or offloading systems.

Inventory Management
An instant overview of all flexible hose assemblies on all of your installations worldwide: ContiConnect is a web-based inventory management program designed for your peace of mind. Being able to see the current status of your FHAs at the click of a button means you can schedule maintenance, order timely replacements and ensure trouble-free operations.

Installation and Commissioning
With our in-depth expertise in all aspects of fluid transfer in the oil and gas industry, we are your first-choice partner for advising and assisting in the specification, installation, commissioning and change-out of flexible hose assemblies and systems, including high-pressure drilling, production, utility, GMPHOM 2009, turret and FPSO seawater intake hoses and also reeling stations.

Hose failure analysis
We carry out various investigations on damaged high-pressure hoses or hose parts at our facility, to reveal the possible causes of damage and propose necessary actions to avoid similar failures in the future.

Quality

We as part of the Continental group are committed to quality and respect for the environment. We work closely with customers and approved suppliers to ensure the highest quality standards. The quality management system is in accordance with ISO 9001 and API Spec. Q1. The system's performance is regularly checked and audited by independent auditors.

The sytem's performance is regularly checked and audited by independent auditors.
Currently the Company's Quality Management System is approved and certified by Dekra and API.

Our products fully comply with the latest edition of API Spec. 7K, API Spec. 16C and API Spec. 17K standards.

Continental was the first and for many years the only high pressure bonded hose manufacturer certified for all three relevant standards. Hose sizes range from 2" to 16" with pressure ratings up to 20,000psi.

The environmental thinking of the management and the employees is reflected by their daily activities and documented by the ISO 14001 environmental management system applied in the company.


API

REGISTRATION NO. Q1-0503

Certificate of Registration

The American Petroleum Institute certifies that the quality management system of

CONTITECH RUBBER INDUSTRIAL LTD.
Budapesti Út 10
Szeged
Hungary

has been assessed by the American Petroleum Institute and found to be in conformance with the following:

API Specification Q1

The scope of this registration and the approved quality management system applies to the:

Design and Manufacture of High Pressure Hoses

API approves the organization's justification for excluding:

No Exclusions Identified as Applicable

Effective Date: OCTOBER 15, 2016
Expiration Date: OCTOBER 15, 2019
Registered Since: OCTOBER 15, 2007

Q1
API Spec Q1 Registered

Vice President, API Global Industry Services


Certificate of Authority to use the Official API Monogram

License Number: 17K-0001

CONTITECH RUBBER INDUSTRIAL LTD.
Budapesti Út 10
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Hungary

API-17K

17K-0001

American Petroleum Institute

QMS Exclusions: No Exclusions Identified as Applicable

Effective Date: OCTOBER 15, 2016
Expiration Date: OCTOBER 15, 2019


Certificate of Authority to use the Official API Monogram

License Number: 16C-0004

CONTITECH RUBBER INDUSTRIAL LTD.
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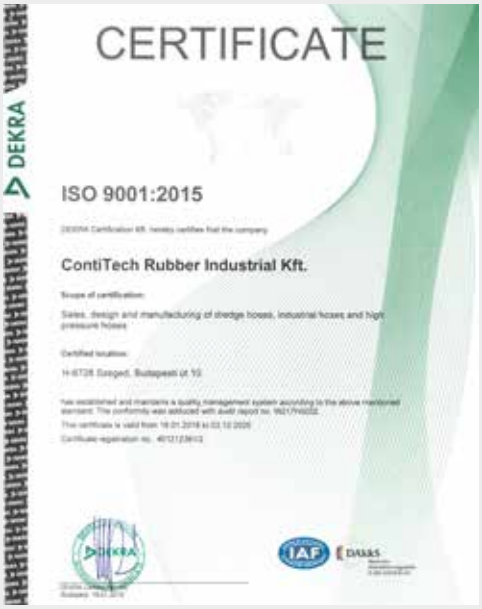
API-16C

16C-0004

American Petroleum Institute

QMS Exclusions: No Exclusions Identified as Applicable

Effective Date: JULY 26, 2016
Expiration Date: OCTOBER 15, 2019


DEKRA

CERTIFICATE

ISO 9001:2015

ContiTech Rubber Industrial Kft.

Scope of certification:

Sales, design and manufacturing of dredge hoses, industrial hoses and high pressure hoses

Certified location:

H-6728 Szeged, Budapesti út 10

IAF

DAkkS


Certificate of Authority to use the Official API Monogram

License Number: 7K-0008

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Szeged
Hungary

API-7K

7K-0008

American Petroleum Institute

QMS Exclusions: No Exclusions Identified as Applicable

Effective Date: OCTOBER 15, 2016
Expiration Date: OCTOBER 15, 2019

Continental Global Leaders in Hose Solutions


Marine Hoses


Dock Hoses


Hose & Couplings


Dredge Hose Systems


Sea-Water intake Systems


Deep Sea Mining


LNG Hoses

Industrial Hoses


Hose Management

Continental

The global partner of choice for industrial fluid product systems and services. For combined solutions – smart and sustainable.

Our products are created to the very specific needs of our customer's applications in nearly all industries. This results in hoses and hose systems for the construction industry, the food and drinks industry, for chemical and petrochemical production operations, oil & gas exploration, water treatment, mining, steel production and mechanical engineering.

Continental is made up of a host of sites across the globe and together boast an excellent track record in providing customised solutions in the most diverse environmental conditions in the world.

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www.contitech-oil-gas.com

The Continental Corporation is a development partner and original equipment supplier to numerous industries for high-quality functional parts, components and systems. With its know-how in rubber and plastics technology,

We contribute significantly to industrial progress and mobility that is safe, comfortable and eco-friendly.

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Brochure last modified - September 2018

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