

Continental 
The Future in Motion



High Pressure Flexible Lines for
Production Applications



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.

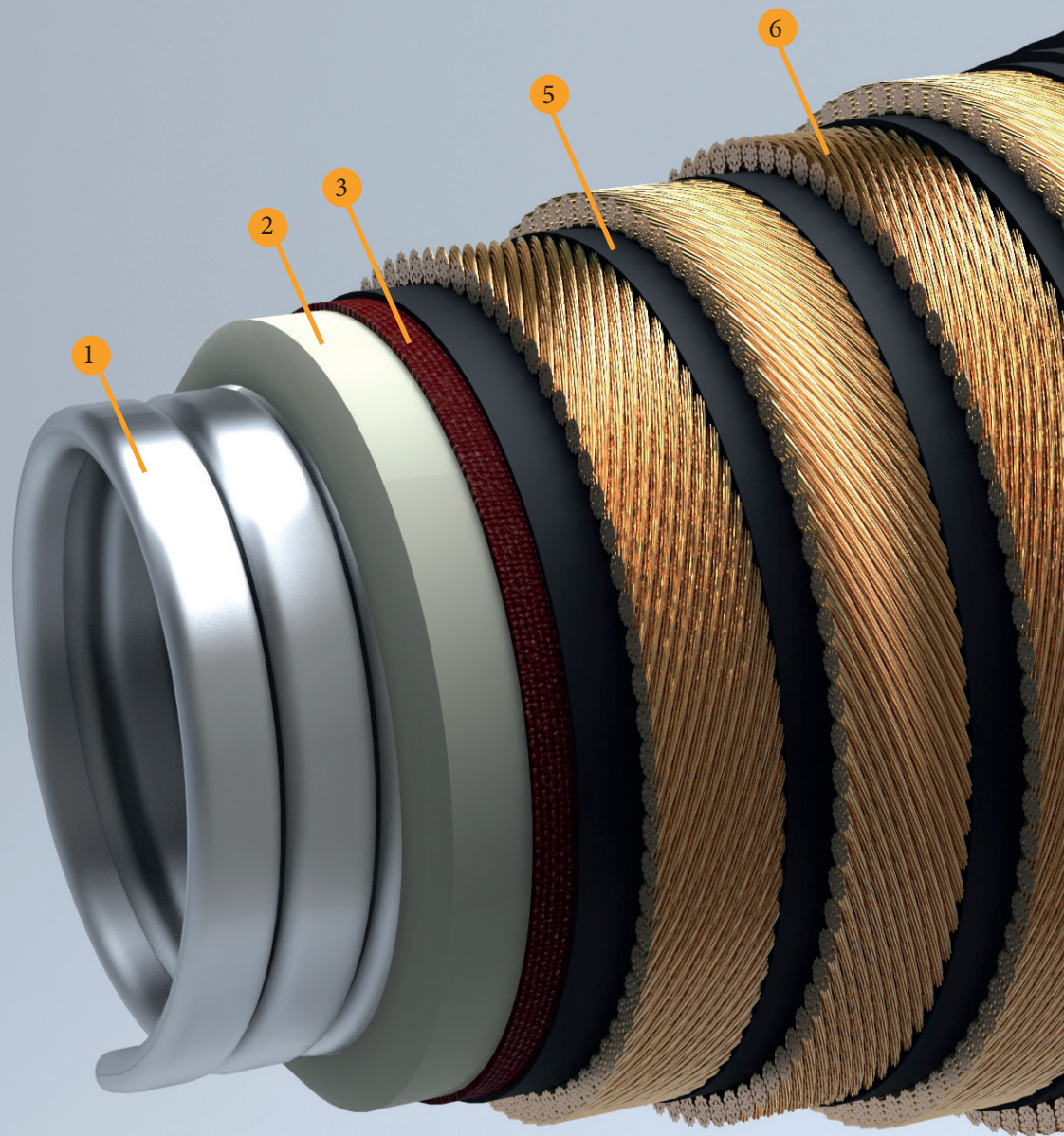
All of our high performance hose products are certified to all relevant API standards for high pressure rubber hoses and flexible pipes - API 7K, API 16C and API 17K.

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

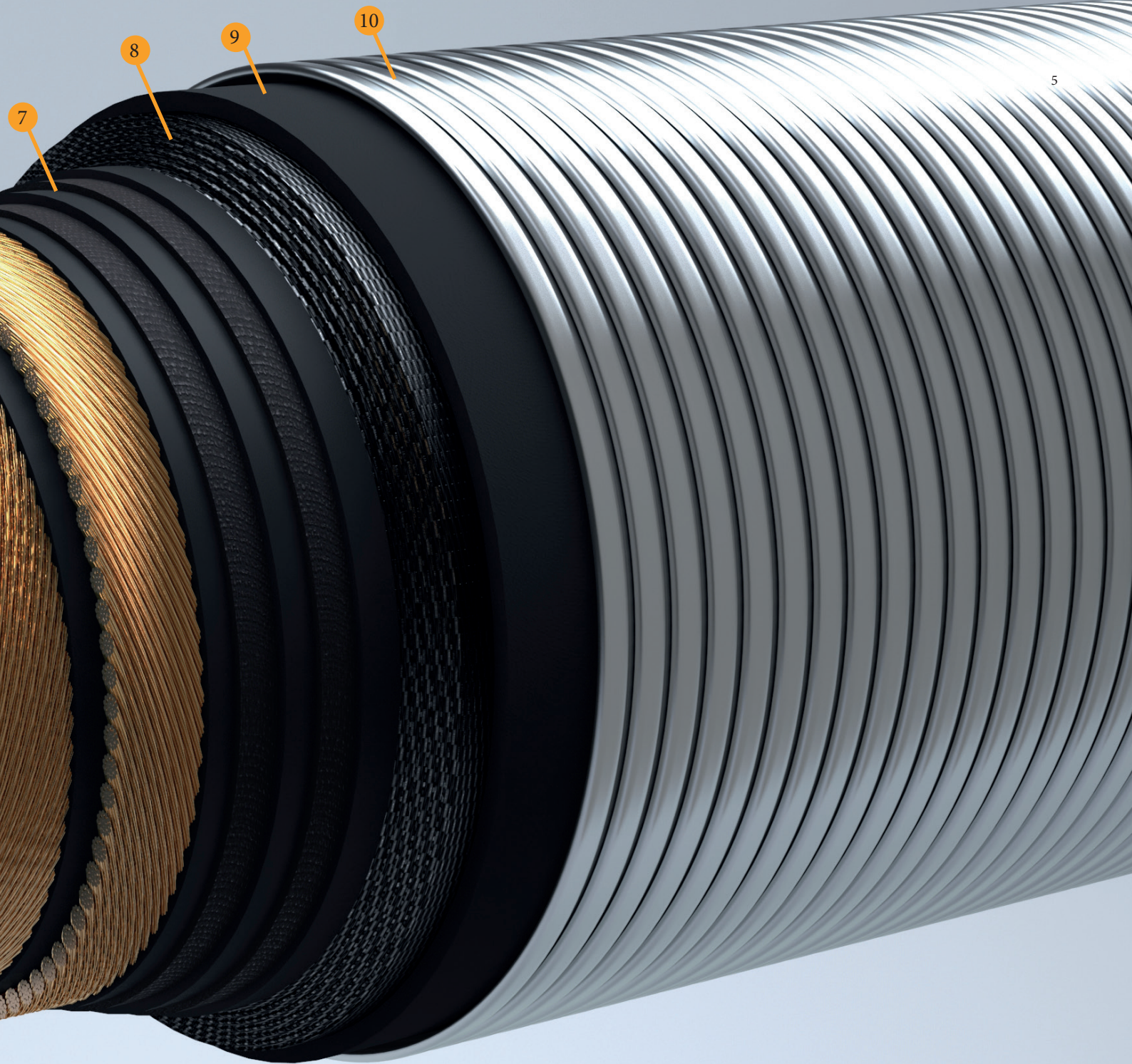
The flexible hose lines are a bonded construction comprising steel and elastomeric materials. The principal characteristic of bonded construction is the build-up of individual layers in the flexible hose wall which are then combined into one unit through vulcanisation. Hose assemblies are manufactured 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 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.

3 Bumpers

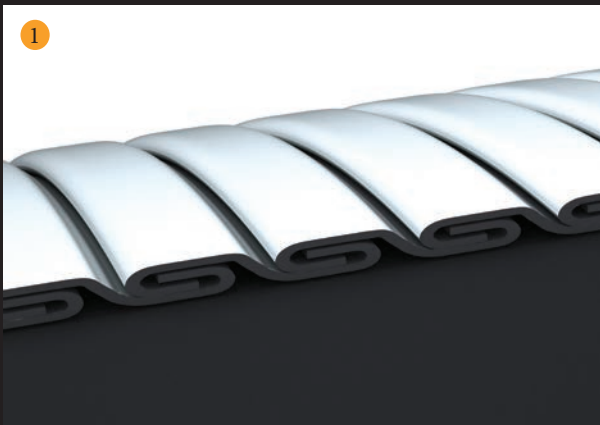
If the exact location of impact between the hose and its surroundings is known (e.g. in the moonpool), a plastic bumper is advised to absorb the impact energy.

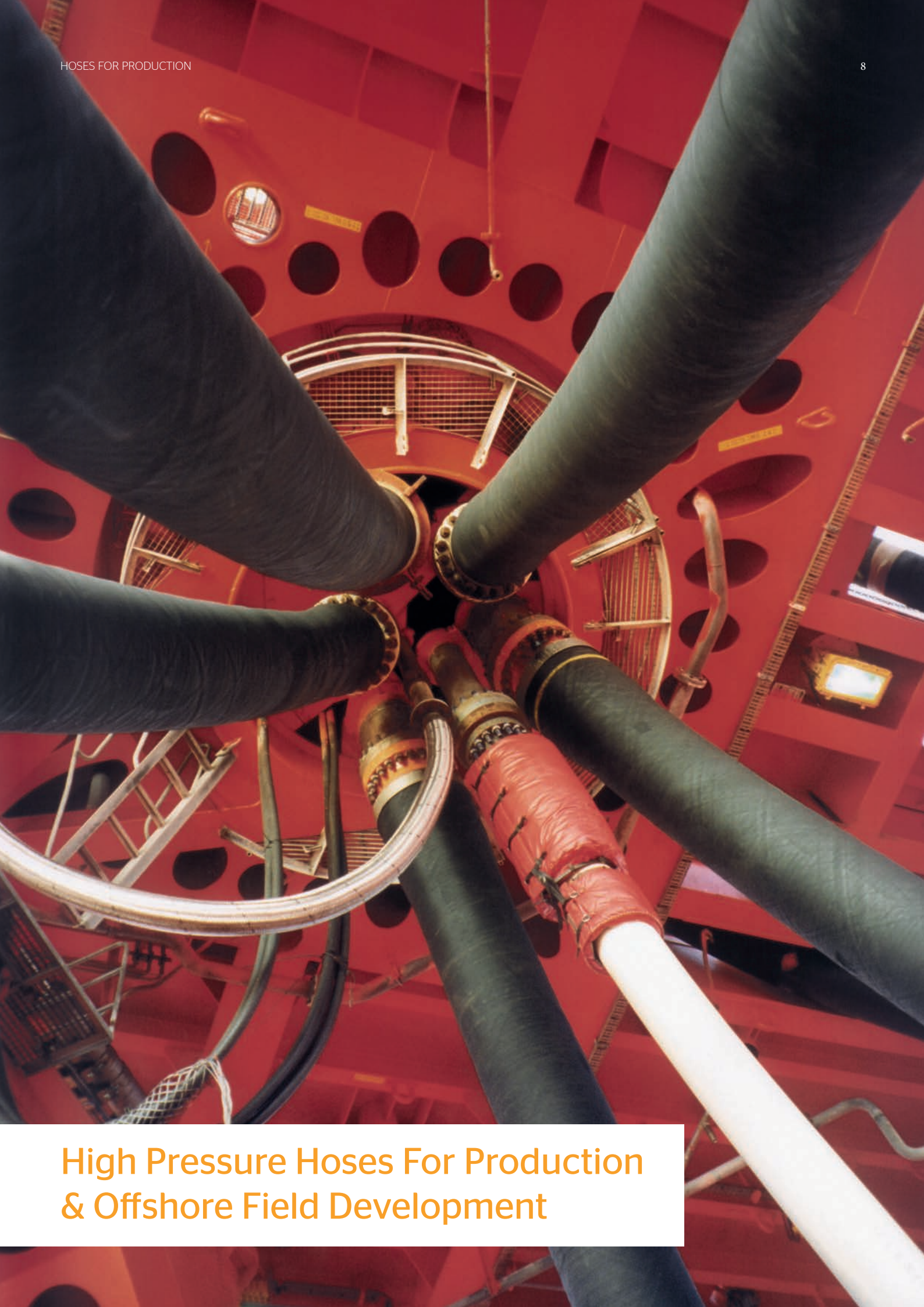
2 Heavy duty moonpool protection

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

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 Production & Offshore Field Development

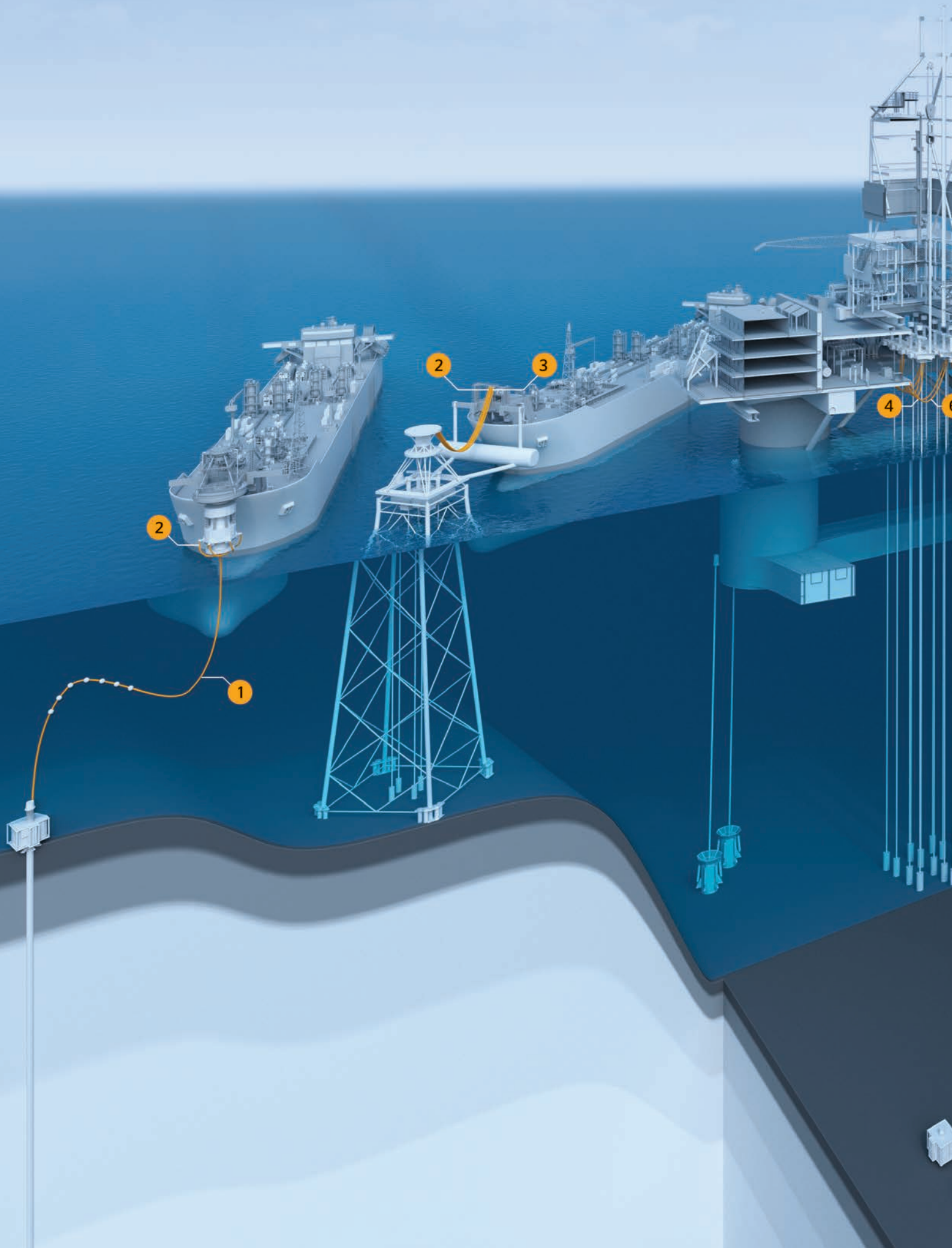
Bonded & Unbonded Flexible Pipes

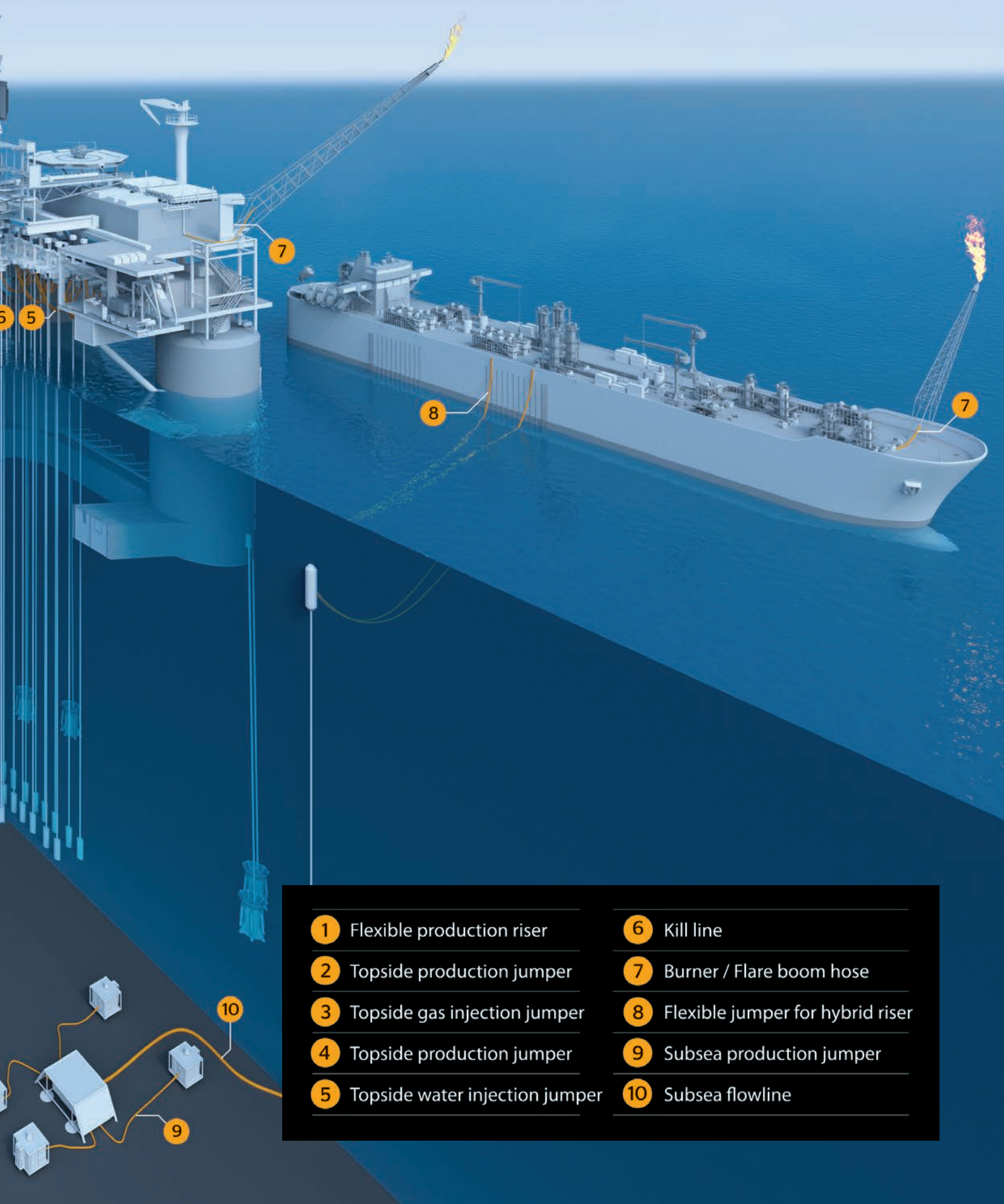
Flexible pipes can be manufactured as either a bonded or unbonded construction. Continental's bonded construction consists of multiple layers of rubber and steel vulcanized into one hose body, whereas an unbonded pipe has separate layers of plastic and steel.

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 ₂ S 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





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



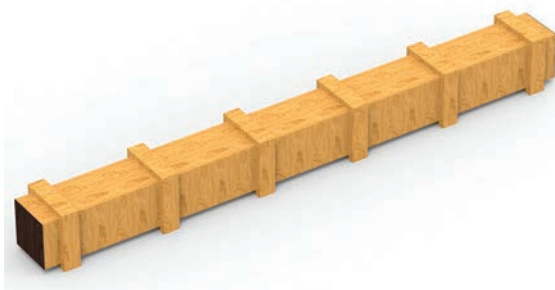
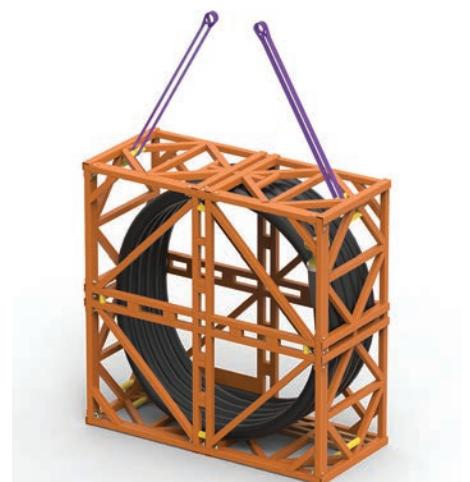
The lifting equipment supplied with the hoses includes a two-part lifting device at each hose end. These lifting devices, called element C's, are supplied loose and not pre-assembled to the hose due to packaging limitations and safety reasons. The normal procedure for handling and lifting the hose involves 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

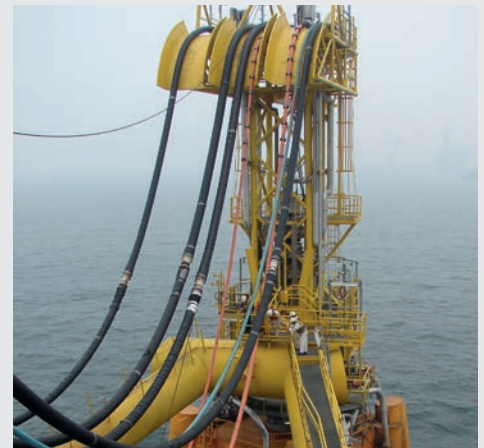
Standard
API Spec. 17K

Construction

Bore type full flow, rough bore
 Liner type H₂S 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 (WP)	Outer Diameter		MBR (static)		MBR (dynamic)		Weight	
mm	in		bar	psi	bar	psi		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	10	3.3	14	4.6	49	33
		Fire rated c/w st. st. wrap						174	6.9	10	3.3	14	4.6	55	37
		Fire rated	517	7,500	776	11,250	2.25	163	6.4	13	4.3	18	5.9	47	32
		Fire rated c/w st. st. wrap						174	6.9	13	4.3	18	5.9	53	36
65	2.5	Fire rated	345	5,000	517	7,500	2.25	180	7.1	10	3.2	14	4.6	54	36
		Fire rated c/w st. st. wrap						191	7.5	10	3.3	14	4.6	62	42
		Fire rated	517	7,500	776	11,250	2.25	176	6.9	14	4.6	18	5.9	52	35
		Fire rated c/w st. st. wrap						187	7.4	14	4.6	18	5.9	60	40
78	3.0	Fire rated	345	5,000	517	7,500	2.25	197	7.8	12	3.9	17	5.6	65	44
		Fire rated c/w st. st. wrap						208	8.2	12	3.9	17	5.6	73	49
		Fire rated	517	7,500	776	11,250	2.25	190	7.5	15	4.9	20	6.6	61	41
		Fire rated c/w st. st. wrap						202	8.0	15	4.9	20	6.6	69	46
92	3.5	Fire rated	345	5,000	517	7,500	2.25	211	8.3	14	4.6	18	5.9	72	48
		Fire rated c/w st. st. wrap						222	8.7	14	4.6	18	5.9	81	54
		Fire rated	517	7,500	776	11,250	2.25	204	8.0	17	5.6	2.2	7.2	68	46
		Fire rated c/w st. st. wrap						216	8.5	17	5.6	2.2	7.2	78	52
104	4.0	Fire rated	345	5,000	517	7,500	2.25	223	8.8	15	4.9	2.0	6.6	79	53
		Fire rated c/w st. st. wrap						239	9.4	15	4.9	2.0	6.6	91	61
		Fire rated	517	7,500	776	11,250	2.25	214	8.4	18	5.9	2.3	7.5	73	49
		Fire rated c/w st. st. wrap						226	8.9	18	5.9	2.3	7.5	82	55
130	5.0	Fire rated	345	5,000	517	7,500	2.25	252	9.9	16	5.3	2.1	6.9	97	65
		Fire rated c/w st. st. wrap						269	10.6	16	5.3	2.1	6.9	107	72
152	6.0	Fire rated	345	5,000	518	7,500	2.25	278	10.9	19	6.2	2.6	8.5	112	75
		Fire rated c/w st. st. wrap						291	11.5	19	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 H₂S 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 (WP)	Outer Diameter		MBR (static)		MBR (dynamic)		Weight				
		mm	in	bar	psi		bar	psi	mm	in	m	ft	m	ft	kg/m	lb/ft	
53	2.0	Standard	517	7500	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		
	690	10,000	Fire rated c/w st. st. wrap	1035	15,000	2.25	174	6.6	1.0	3.3	1.4	4.6	55	37			
			Standard				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			
		78	3.0	Fire rated	1035	15,000	2.25	185	7.3	1.4	4.6	1.8	5.9	67	45		
				Standard				197	7.8	1.4	4.6	1.8	5.9	75	50		
				Standard c/w st. st. wrap				176	6.9	1.1	3.6	1.5	4.9	54	36		
104	4.0	Standard	517	7500	776	11,250	2.25	188	7.4	1.1	3.6	1.5	4.9	62	42		
		Standard c/w st. st. wrap						197	7.8	1.2	3.9	1.7	5.6	65	44		
		Fire rated						208	8.2	1.2	3.9	1.7	5.6	73	49		
	690	10,000	Fire rated c/w st. st. wrap	1035	15,000	2.25	214	8.4	1.6	5.3	2.1	6.9	86	58			
			Standard				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			
		104	4.0	Fire rated	1035	15,000	2.25	218	8.6	1.8	5.9	2.4	7.9	89	60		
				Standard				225	8.9	1.6	5.3	2.1	6.9	95	64		
				Standard c/w st. st. wrap				202	8.0	1.4	4.6	1.8	5.9	67	45		
130	5.0	Standard	517	7500	776	11,250	2.25	214	8.4	1.4	4.6	1.8	5.9	75	50		
		Standard c/w st. st. wrap						223	8.8	1.5	4.9	2.0	6.6	79	53		
		Fire rated						239	9.4	1.5	4.9	2.0	6.6	91	61		
	690	10,000	Fire rated c/w st. st. wrap	1035	15,000	2.25	218	8.6	1.8	5.9	2.4	7.9	89	60			
			Standard				229	9.0	1.8	5.9	2.4	7.9	98	66			
			Standard c/w st. st. wrap				239	9.4	1.9	6.2	2.6	8.5	102	69			
		152	6.0	Fire rated	1035	15,000	2.25	251	9.9	1.9	6.2	2.6	8.5	112	75		
				Standard				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		
207	8.0	Standard	517	7500	776	11,250	2.25	252	9.9	1.6	5.3	2.1	6.9	97	65		
		Standard c/w st. st. wrap						279	11.0	1.6	5.3	2.1	6.9	107	72		
		Fire rated						257	10.1	1.8	5.9	2.4	7.9	96	65		
	690	10,000	Fire rated c/w st. st. wrap	1035	15,000	2.25	269	10.6	1.8	5.9	2.4	7.9	106	71			
			Standard				278	10.9	1.9	6.2	2.6	8.5	112	75			
			Standard c/w st. st. wrap				289	11.4	1.9	6.2	2.6	8.5	123	83			
		255	10.0	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
690	10,000	Fire rated c/w st. st. wrap	1035	15,000	2.25	346	13.6	2.4	7.9	3.2	10.5	156	105				
		Standard				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	Fire rated	1035	15,000	2.25	383	15.1	2.6	8.5	3.5	11.5	168	113			
			Standard				394	15.5	2.6	8.5	3.5	11.5	184	124			
			Standard c/w st. st. wrap				410	16.1	2.7	8.9	3.6	11.8	169	114			
690	10,000	Fire rated c/w st. st. wrap	1035	15,000	2.25	421	16.6	2.7	8.9	3.6	11.8	186	125				
		Standard				430	16.9	2.8	9.2	3.8	12.5	194	130				
		Standard 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	
690	10,000	Fire rated c/w st. st. wrap	1035	15,000	2.25	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



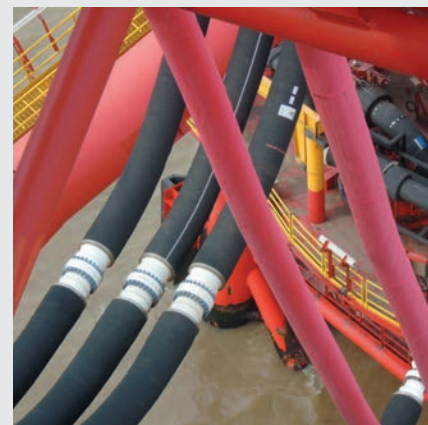
Standard
API Spec. 17K

Construction

Bore type	full flow, rough bore
Liner type	H ₂ S 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 neck 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
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 Platform (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 ₂ S resistant TauroFlon™	H ₂ S 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	in	Type	Rated Working Pressure		Test Pressure		Safety Factor (WP)	Outer Diameter		MBR (operation)		Weight	
			bar	psi	bar	psi		mm	in	m	ft	kg/m	lb/ft
53	2.0	Fire rated	345	5000	517	7500	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	10000	1035	15000	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
65	2.5	Fire rated	1035	15000	1552	22500	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
		Fire rated	345	5000	517	7500	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
78	3.0	Fire rated	690	10000	1035	15000	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	1035	15000	1552	22500	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
104	4.0	Fire rated	345	5000	517	7500	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	10000	1035	15000	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
104	4.0	Fire rated	1035	15000	1552	22500	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
		Fire rated	345	5000	517	7500	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
104	4.0	Fire rated	690	10000	1035	15000	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	in	Type	Rated Working Pressure		Test Pressure		Safety Factor (WP)	Outer Diameter		MBR (operation)		Weight	
			bar	psi	bar	psi		mm	in	m	ft	kg/m	lb/ft
51	2.0	Fire rated	345	5000	517	7500	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	10000	1035	15000	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
64	2.5	Fire rated	1035	15000	1552	22500	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
		Fire rated	345	5000	517	7500	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
76	3.0	Fire rated	690	10000	1035	15000	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	1035	15000	1552	22500	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
102	4.0	Fire rated	345	5000	517	7500	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	10000	1035	15000	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
102	4.0	Fire rated	1035	15000	1552	22500	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
		Fire rated	345	5000	517	7500	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
102	4.0	Fire rated	690	10000	1035	15000	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 H₂S 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 (WP)	Outer Diameter		MBR (operation)		Weight	
mm	in		bar	psi	bar	psi		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	776	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	776	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 ₂ S 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 (WP)	Max water depth		Outer Diameter		MBR (static)		MBR (dynamic)		Weight	
mm	in		bar	psi	bar	psi		m	ft	mm	in	m	ft	m	ft	kg/m	lb/ft
53	2.0	Standard	345	5000	514	7500	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	7500	776	11,250	2.25	325C	10660	143	5.6	1.2	3.9	1.7	5.6	38	26
65	2.5	Standard c/w st. st. wrap								153	6.0	1.2	3.9	1.7	5.6	42	28
		Standard	345	5000	517	7500	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
78	3.0	Standard	517	7500	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
		Standard	345	5000	517	7500	2.25	260C	8530	176	6.9	1.1	3.6	1.5	4.9	54	36
92	3.5	Standard c/w st. st. wrap								188	7.4	1.1	3.6	1.5	4.9	62	42
		Standard	517	7500	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
104	4.0	Standard	345	5000	517	7500	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	7500	776	11,250	2.25	180C	5900	184	7.2	1.6	5.3	2.1	6.9	57	38
130	5.0	Standard c/w st. st. wrap								196	7.7	1.6	5.3	2.1	6.9	66	44
		Standard	345	5000	517	7500	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
152	6.0	Standard	517	7500	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
		Standard	345	5000	517	7500	2.25	100C	3280	231	9.1	1.5	4.9	2.0	6.6	83	56
178	7.0	Standard c/w st. st. wrap								243	9.6	1.5	4.9	2.0	6.6	92	62
		Standard	345	5000	517	7500	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
207	8.0	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
		Standard	259	3,750	389	5,625	2.25	60C	1960	311	12.2	2.2	7.2	2.9	9.5	121	81
255	10.0	Standard c/w st. st. wrap								325	12.8	2.2	7.2	2.9	9.5	136	91
		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
		Standard	103	1,500	155	2,250	2.25	16C	520	434	17.1	2.9	9.5	3.9	12.8	181	122
327	13.0	Standard c/w st. st. wrap								445	17.5	2.9	9.5	3.9	12.8	199	134
		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 H₂S 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 (WP)	Max water depth		Outer Diameter		MBR (static)		MBR (dynamic)		Weight	
mm	in		bar	psi	bar	psi		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
65	2.5	Standard c/w st. st. wrap								176	6.9	1.3	4.3	1.7	5.6	64	43
		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
78	3.0	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
		Standard	517	7,500	776	11,250	2.25	2600	8530	176	6.9	1.1	3.6	1.5	4.9	54	36
92	3.5	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
104	4.0	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
130	5.0	Standard c/w st. st. wrap								219	8.6	1.7	5.6	2.2	7.2	91	61
		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
152	6.0	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
		Standard	517	7,500	776	11,250	2.25	1000	3280	231	9.1	1.5	4.9	2.0	6.6	83	56
178	7.0	Standard c/w st. st. wrap								243	9.6	1.5	4.9	2.0	6.6	92	62
		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
207	8.0	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
		Standard	345	5,000	518	7,500	2.25	600	1960	311	12.2	2.2	7.2	2.9	9.5	121	81
255	10.0	Standard c/w st. st. wrap								325	12.8	2.2	7.2	2.9	9.5	136	91
		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
		Standard	207	3,000	311	4,500	2.25	160	520	434	17.1	2.9	9.5	3.9	12.8	181	122
327	13.0	Standard c/w st. st. wrap								445	17.5	2.9	9.5	3.9	12.8	199	134
		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 ₂ S 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		
		bar	psi	bar	psi		(WP)	m	ft	kN	lbs	mm	in	m	ft	m	ft	kg/m	lb/ft
53	20	Standard	345	5000	514	7500	2.25	1950	6390	250	56200	148	5.83	09	2.95	12	3.94	39	26.2
		Standard c/w st. st. wrap										158	6.22	09	2.95	12	3.94	44	29.6
	Standard	517	7500	776	11250	2.25	3250	10660	280	62900	165	6.50	13	4.26	17	5.58	57	38.3	
	Standard c/w st. st. wrap										176	6.93	13	4.26	17	5.58	64	43.0	
65	25	Standard	345	5000	517	7500	2.25	1300	4260	300	67400	159	6.26	09	2.95	12	3.94	44	29.6
		Standard c/w st. st. wrap										171	6.73	09	2.95	12	3.94	51	34.3
	Standard	517	7500	776	11250	2.25	2250	7380	370	83100	178	7.01	14	4.59	18	5.90	64	43.0	
	Standard c/w st. st. wrap										190	7.48	14	4.59	18	5.90	72	48.4	
78	30	Standard	345	5000	517	7500	2.25	2600	8530	540	121300	176	6.93	11	3.61	15	4.92	54	36.3
		Standard c/w st. st. wrap										188	7.40	11	3.61	15	4.92	62	41.7
	Standard	517	7500	776	11250	2.25	1700	5570	550	123600	193	7.60	15	4.92	20	6.56	75	50.4	
	Standard c/w st. st. wrap										205	8.07	15	4.92	20	6.56	83	55.8	
92	35	Standard	345	5000	517	7500	2.25	1750	5740	550	123600	190	7.48	12	3.94	17	5.58	60	40.3
		Standard c/w st. st. wrap										202	7.95	12	3.94	17	5.58	68	45.7
	Standard	517	7500	776	11250	2.25	1800	5900	550	123600	207	8.15	17	5.58	2.2	7.22	83	55.8	
	Standard c/w st. st. wrap										219	8.62	17	5.58	2.2	7.22	91	61.1	
104	40	Standard	345	5000	517	7500	2.25	1750	5740	600	134800	202	7.95	14	4.59	18	5.90	67	45.0
		Standard c/w st. st. wrap										214	8.43	14	4.59	18	5.90	75	50.4
	Standard	517	7500	776	11250	2.25	1800	5900	630	141600	218	8.58	18	5.90	2.4	7.87	89	59.8	
	Standard c/w st. st. wrap										229	9.02	18	5.90	2.4	7.87	98	65.9	
130	50	Standard	345	5000	517	7500	2.25	1000	3280	650	146100	231	9.09	15	4.92	2.0	6.56	83	55.8
		Standard c/w st. st. wrap										243	9.57	15	4.92	2.0	6.56	92	61.8
152	60	Standard	345	5000	517	7500	2.25	1100	3600	850	191000	257	10.12	18	5.90	2.4	7.87	96	64.5
		Standard c/w st. st. wrap										269	10.59	18	5.90	2.4	7.87	106	71.2
178	70	Standard	293	4250	440	6375	2.25	920	3010	950	213500	279	10.98	20	6.56	1.7	5.58	101	67.9
		Standard c/w st. st. wrap										291	11.46	20	6.56	1.7	5.58	117	78.6
207	80	Standard	259	3750	389	5625	2.25	600	1960	1000	224800	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	100	Standard	155	2250	233	3375	2.25	280	910	1000	224800	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	120	Standard	155	2250	233	3375	2.25	190	620	1000	224800	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	130	Standard	103	1500	155	2250	2.25	160	520	1000	224800	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	140	Standard	86	1250	129	1875	2.25	120	390	1050	236000	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



UT 7551 N

OTC



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

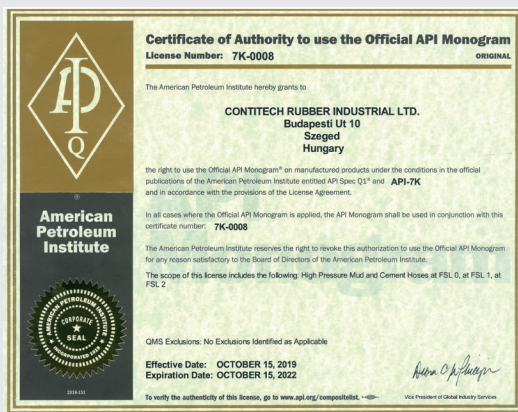
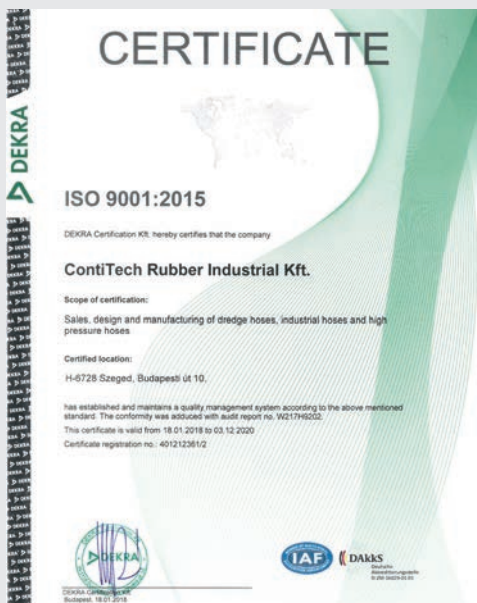
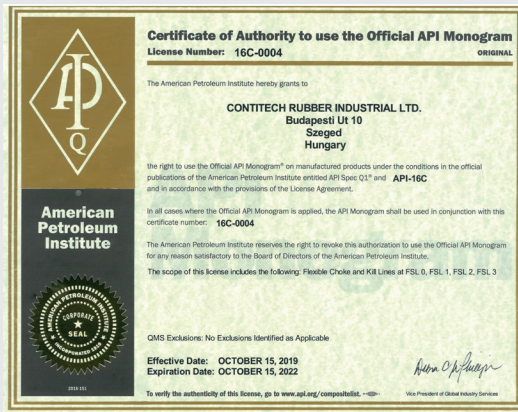
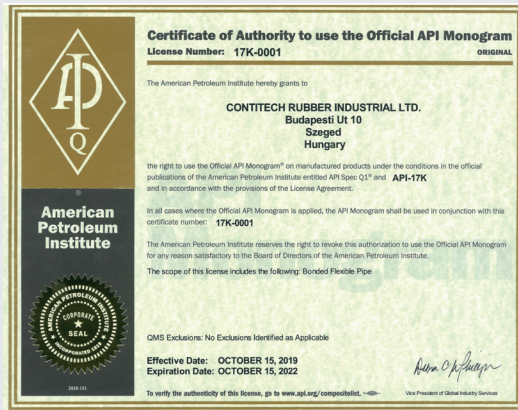
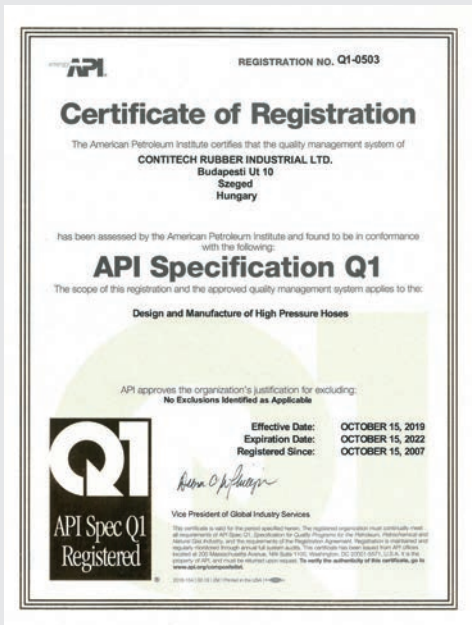
We as part of the Continental group are committed to quality and respect for the environment. We work closely with customers and approved suppliers to ensure the highest quality standards. The quality management system is in accordance with ISO 9001 and API Spec. Q1. The system's performance is regularly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

The system'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.

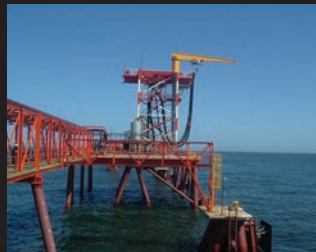
The environmental thinking of the management and the employees is reflected by their daily activities and documented by the ISO 14001 environmental management system applied in the company.



Continental Global Leaders in Hose Solutions



Marine Hoses



Dock Hoses



Sea-Water Intake Systems



Dredge Hose Systems



Industrial Hoses



Deep Sea Mining



Hose Management



Intelligent Hoses

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.

www.contitech-oil-gas.com



Learn more about
the contents of this
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ContiTech Fluid Oil & Marine Middle East FZE
PO Box 261406 - Jebel Ali Free Zone
Dubai
Tel: +971 (4) 561 5990
Fax: + 971 (4) 4278809
Email: sales.mea@continental.com

ContiTech Oil & Marine Corp
11535 Brittmore Park Drive
Houston, TX 77041
Tel: +1 832 327 0141
Fax: +1 832 327 0148
Email: sales@fluid.contitech.us

ContiTech Rubber Industrial Kft.
6728 Szeged, Budapesti ut 10
Tel: +36 62 566 738
Fax: +36 62 566 999
Email: sales@fluid.contitech.hu

Dunlop Oil & Marine Ltd
Blyth Workspace, Quay Road, Blyth
Northumberland, NE24 3AF, England

Tel: +44 1670 528700
Fax: +44 1670 520535
Email: marine@fluid.contitech.co.uk

Your local contact
www.contitech.de/contactlocator

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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