Continental
The Future in Motion

High Pressure Flexible Lines
for Production Applications

www.continental-industry.com/energy-solutions

High Performance Flexible Hoses

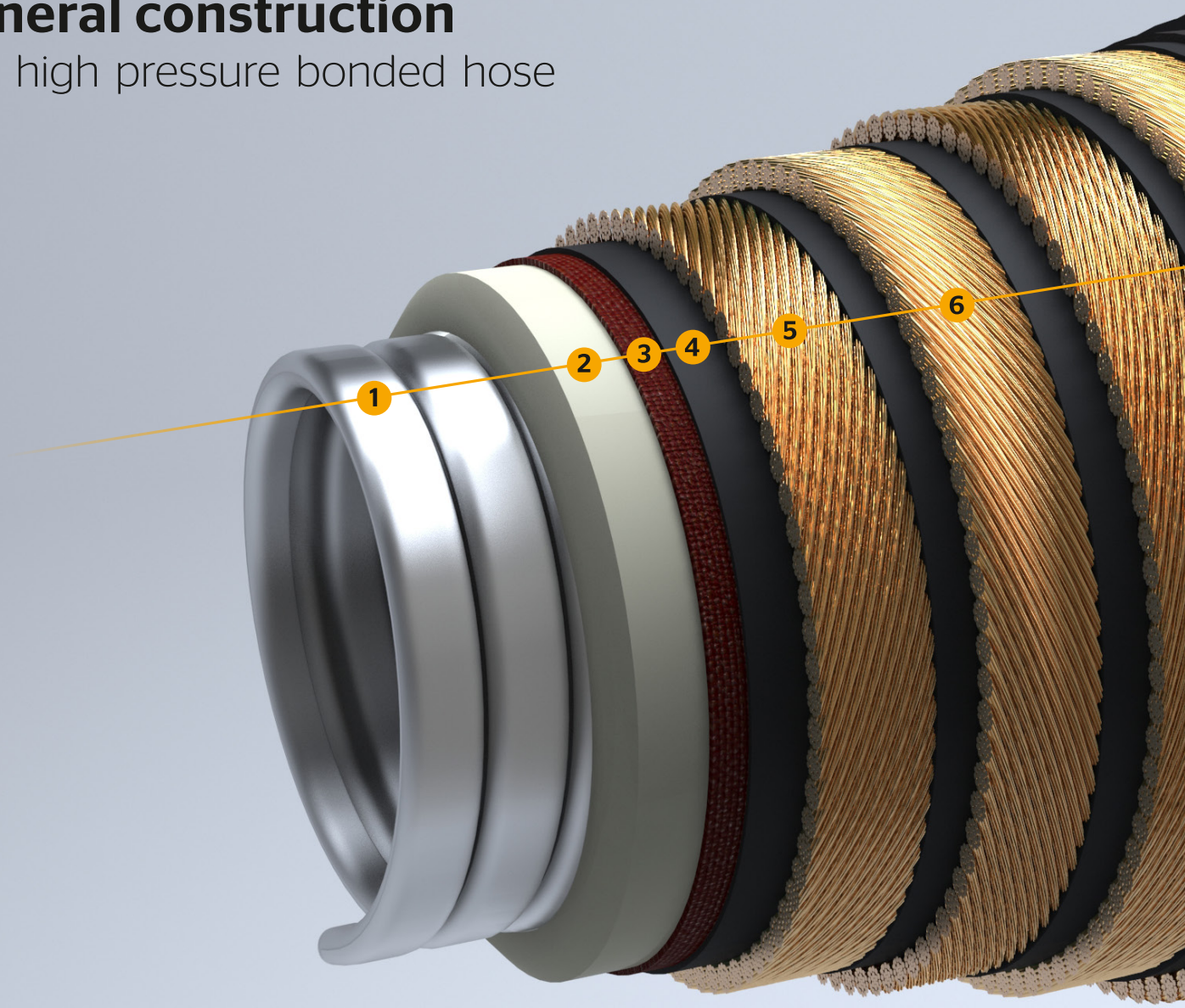
Continental is a global leader in the design, manufacture and supply of flexible lines.
We have over 50 years of experience in the field of bonded flexible pipes, and we are continuously striving to extend the performance boundaries of our products in order to meet the ever more challenging demands of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

All of our high performance hose products are certified to relevant industry / 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.

Contents

General construction
of a high pressure bonded hose

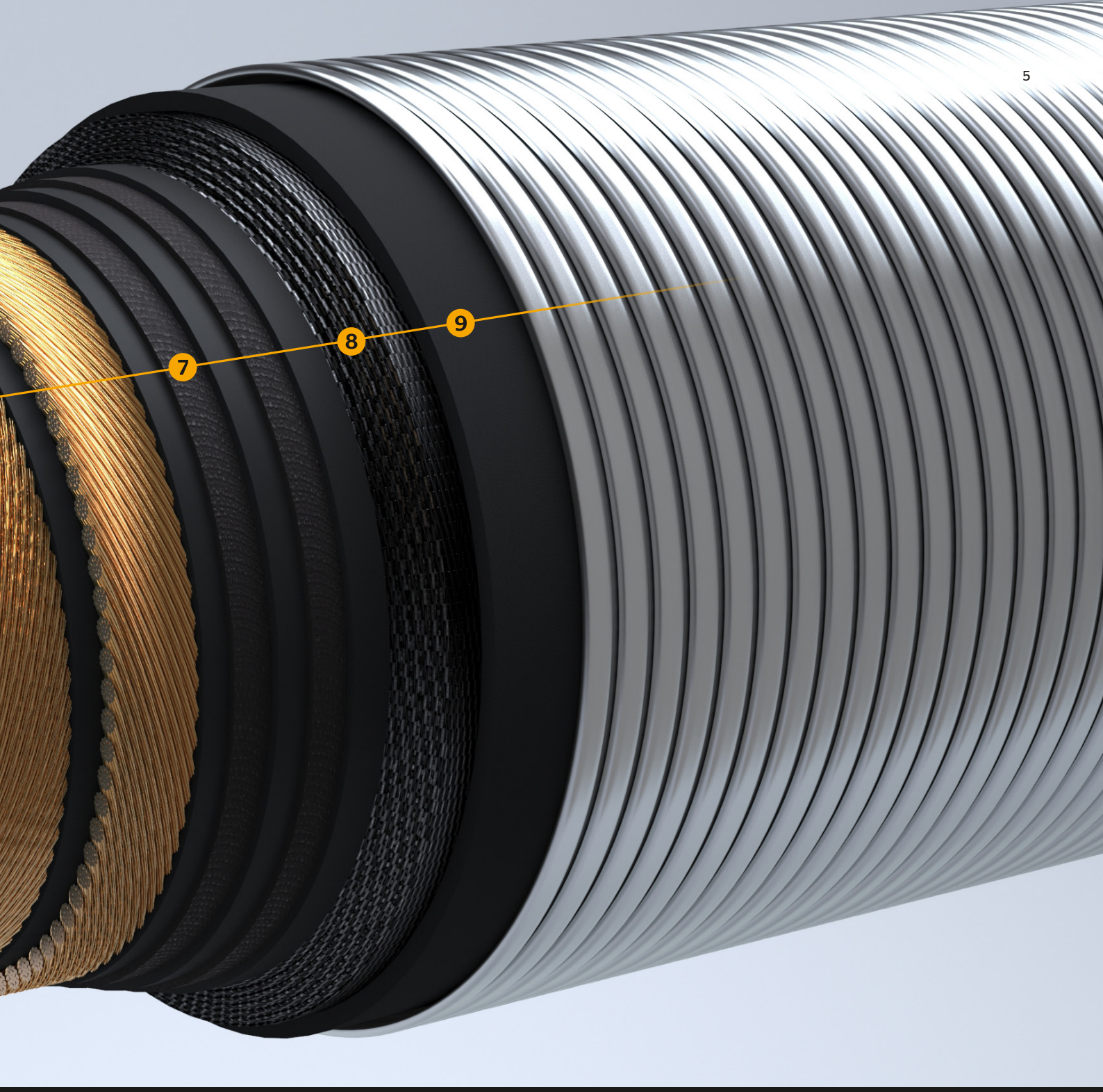


The flexible hose lines are a bonded construction comprising steel and elastomeric materials. The principal characteristic of bonded construction is the build-up of individual layers in the flexible hose wall which are then combined into one unit through vulcanisation.

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 Elastomeric cushion plies
To ensure adhesive bonding between different plies.

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

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

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

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

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

10 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.

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. Localized 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
Applications where the hose is subjected to high torsional loads – such as within the moonpool – Continental can provide swivel solutions to mitigate mechanical stress and ensure operational integrity.

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.

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

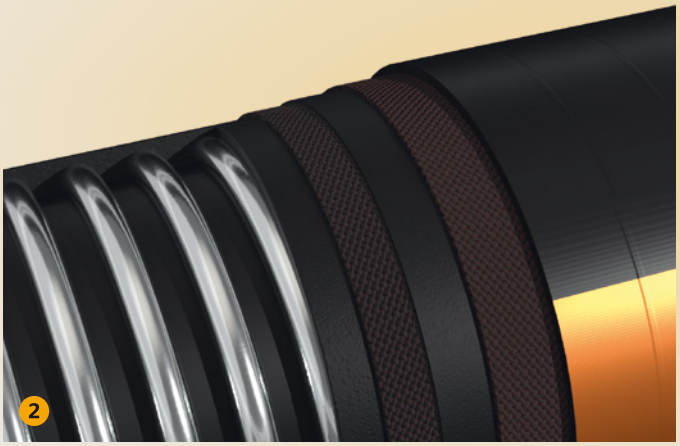
Several types of external protection are available depending on the application, such as:

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.

2 Heavy duty moonpool protection
A 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.



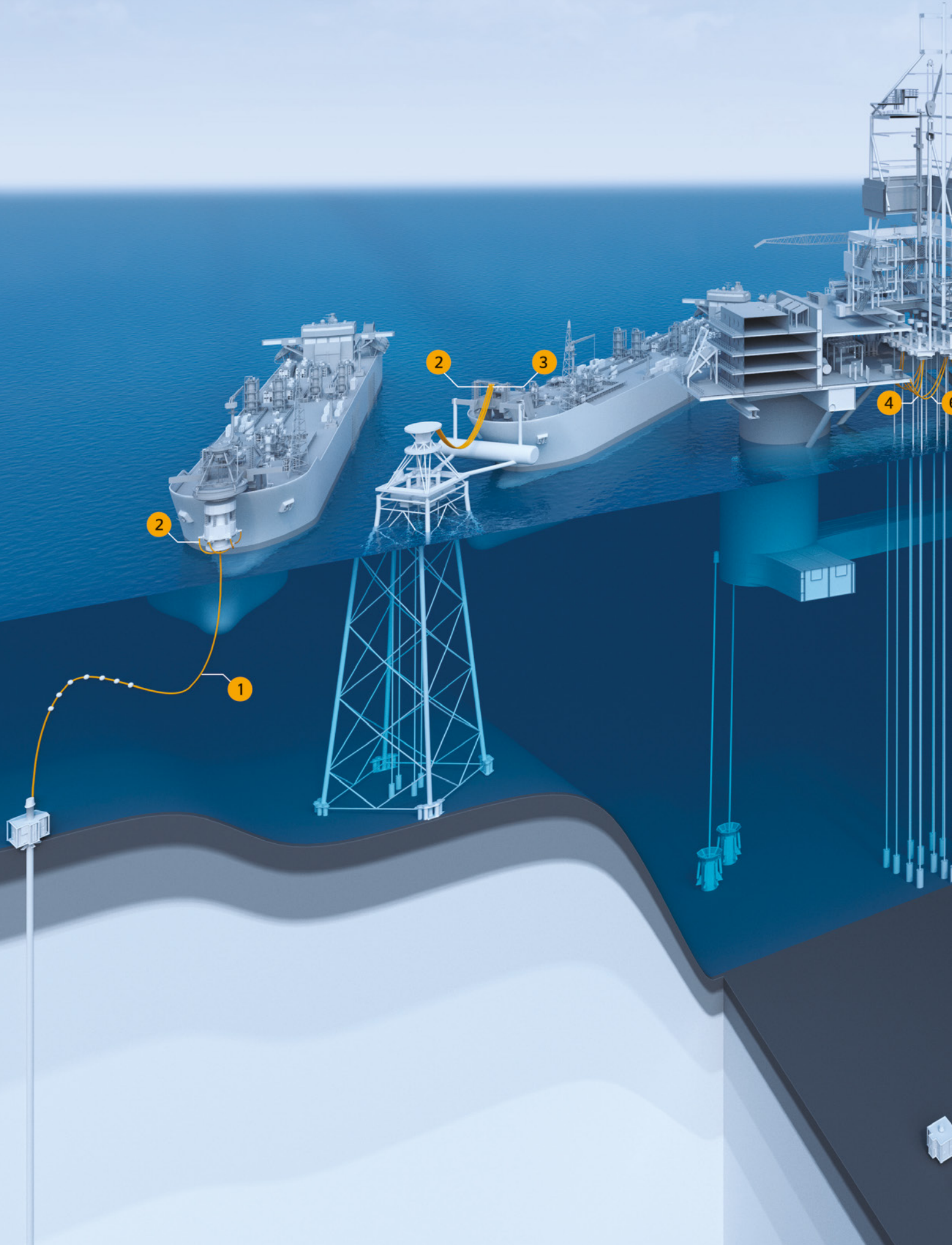
High Pressure Hoses For Production & Offshore Field Development

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	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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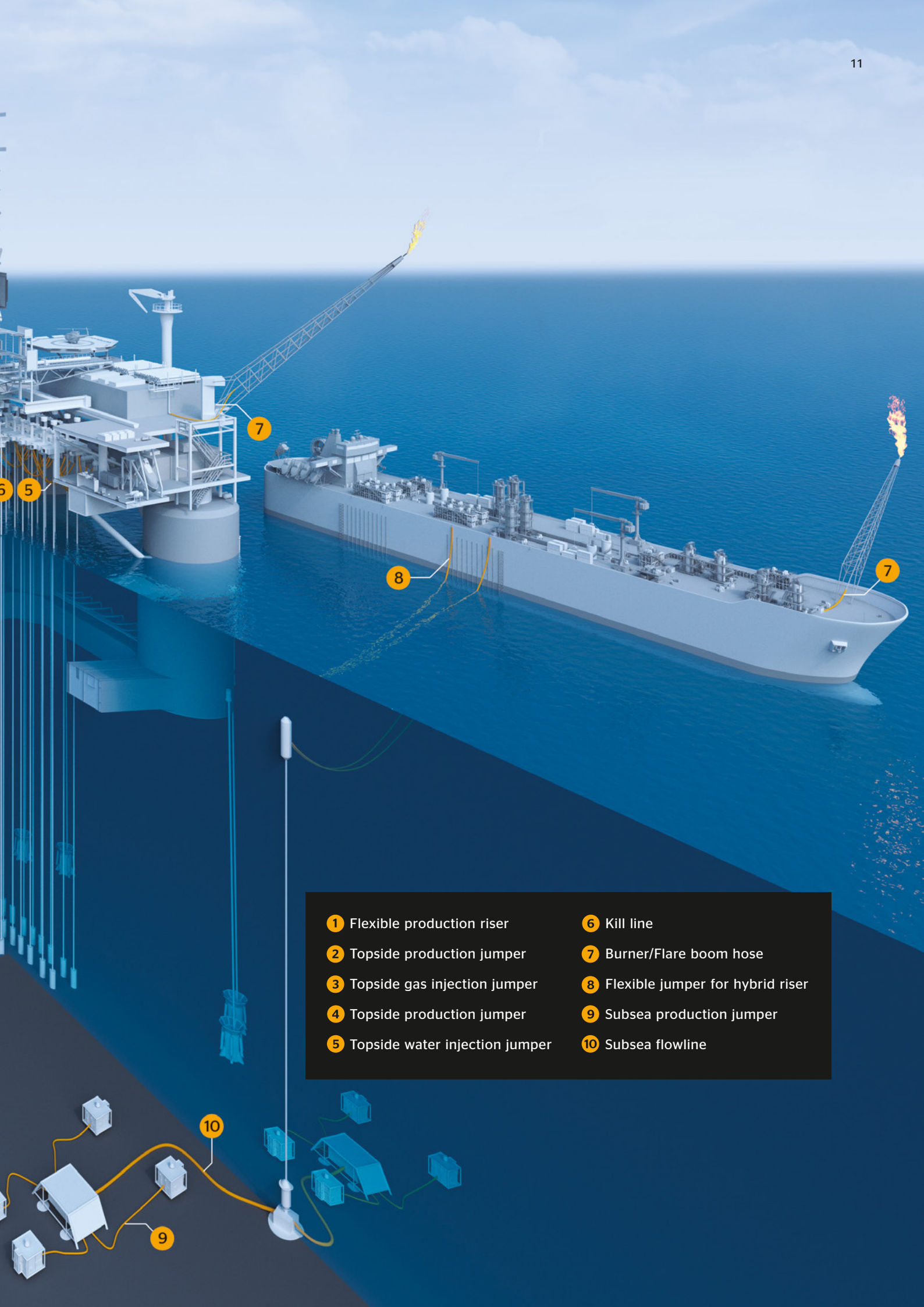
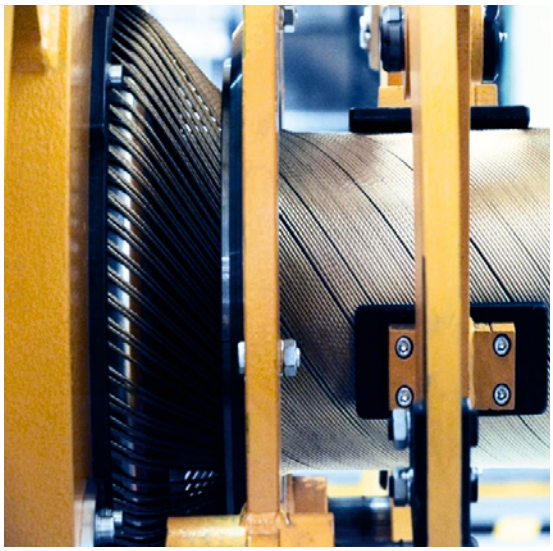

1 Flexible production riser
2 Topside production jumper
3 Topside gas injection jumper
4 Topside production jumper
5 Topside water injection jumper
6 Kill line
7 Burner/Flare boom hose
8 Flexible jumper for hybrid riser
9 Subsea production jumper
10 Subsea flowline

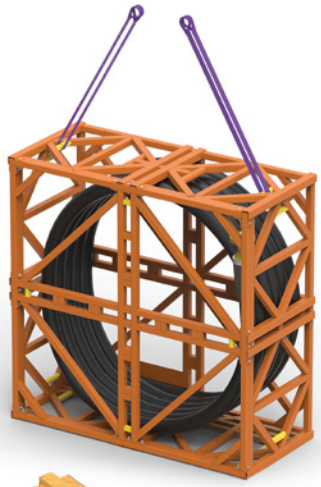
General Information Products for production and offshore field development

- 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 21.
- 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 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. Safety Clamps and Chains are fully compliant with API RP 7L with proof load certification. All lifting collars are supplied with SWL certification.

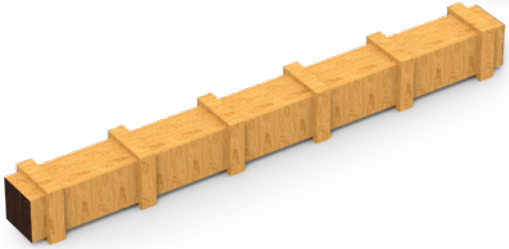


Transportation

Our products are transported via road, rail, ship or by air. Method of packaging depending on the diameter and length of hose can be as follows:

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

Note: For more detailed information, we will gladly provide you with the Continental User Guide for High Pressure Flexible Lines upon request.



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	60 m (200 ft) up to 8”
	30 m (100 ft) 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	6.61	0.6	1.97	0.9	2.95	48	32.3
		Fire rated c/w st. st. wrap						173	6.81	0.6	1.97	0.9	2.95	55	37.0
		Fire rated	517	7,500	776	11,250	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
		Fire rated	517	7,500	776	11,250	2.25	176	6.93	1.4	4.59	1.8	5.90	52	34.9
		Fire rated c/w st. st. wrap						187	7.36	1.4	4.59	1.8	5.90	60	40.3
78	3.0	Fire rated	345	5,000	517	7,500	2.25	197	7.76	1.2	3.94	1.6	5.25	65	43.7
		Fire rated c/w st. st. wrap						208	8.19	1.2	3.94	1.6	5.25	73	49.1
		Fire rated	517	7,500	776	11,250	2.25	197	7.76	1.2	3.94	1.6	5.25	65	43.7
		Fire rated c/w st. st. wrap						208	8.19	1.2	3.94	1.6	5.25	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
		Fire rated	517	7,500	776	11,250	2.25	204	8.03	1.7	5.58	2.2	7.22	68	45.7
		Fire rated c/w st. st. wrap						216	8.50	1.7	5.58	2.2	7.22	78	52.4
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
		Fire rated	517	7,500	776	11,250	2.25	214	8.43	1.8	5.90	2.3	7.54	73	49.1
		Fire rated c/w st. st. wrap						226	8.90	1.8	5.90	2.3	7.54	82	55.1
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	279	10.98	1.9	6.23	2.6	8.53	113	75.9
		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	305	12.01	2.2	7.22	2.9	9.51	125	84.0
		Fire rated c/w st. st. wrap						316	12.44	2.2	7.22	2.9	9.51	138	92.7
207	8.0	Fire rated	259	3,750	389	5,625	2.25	335	13.19	2.4	7.87	3.2	10.50	143	96.1
		Fire rated c/w st. st. wrap						342	13.46	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	434	17.09	2.8	9.18	3.8	12.46	198	133.0
		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	483	19.02	3.2	10.50	4.4	14.43	223	149.8
		Fire rated c/w st. st. wrap						487	19.17	3.2	10.50	4.4	14.43	240	161.3

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 resistant HNBR or PA
Operating temperature	-30 °C to +90 °C (-22 °F to 194 °F)
Max. available length	60 m (200 ft) up to 8”
	30 m (100 ft) 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	5.83	0.9	2.95	1.2	3.94	39	26.2
		Standard c/w st. st. wrap						153	6.02	0.9	2.95	1.2	3.94	45	30.2
		Fire rated						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
		Standard	690	10,000	1035	15,000	2.25	129	5.08	1.2	3.94	1.2	3.94	35	23.5
		Standard c/w st. st. wrap						134	5.28	1.2	3.94	1.2	3.94	40	26.9
		Fire rated						149	5.87	1.2	3.94	1.2	3.94	43	28.9
		Fire rated c/w st. st. wrap						155	6.10	1.2	3.94	1.2	3.94	48	32.3
		Fire rated	1035	15000	1552	22500	2.25	149	5.87	1.2	3.94	1.2	3.94	43	28.9
		Fire rated c/w st. st. wrap						155	6.10	1.2	3.94	1.2	3.94	48	32.3
78	3.0	Standard	517	7,500	776	11,250	2.25	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
		Fire rated						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
		Standard	690	10,000	1035	15,000	2.25	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
		Fire rated						214	8.43	1.6	5.25	2.1	6.89	86	57.8
		Fire rated c/w st. st. wrap						225	8.86	1.6	5.25	2.1	6.89	95	63.8
104	4.0	Standard	517	7,500	776	11,250	2.25	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
		Fire rated						223	8.78	1.5	4.92	2.0	6.56	79	53.1
		Fire rated c/w st. st. wrap						229	9.02	1.5	4.92	2.0	6.56	87	58.5
		Standard	690	10,000	1035	15,000	2.25	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
		Fire rated						239	9.41	1.9	6.23	2.6	8.53	102	68.5
		Fire rated c/w st. st. wrap						251	9.88	1.9	6.23	2.6	8.53	112	75.3
130	5.0	Standard	517	7,500	776	11,250	2.25	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
		Fire rated						252	9.92	1.6	5.25	2.1	6.89	97	65.2
		Fire rated c/w st. st. wrap						279	10.98	1.6	5.25	2.1	6.89	107	71.9
152	6.0	Standard	517	7,500	776	11,250	2.25	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
		Fire rated						278	10.94	1.9	6.23	2.6	8.53	112	75.3
		Fire rated c/w st. st. wrap						289	11.38	1.9	6.23	2.6	8.53	123	82.7
207	8.0	Standard	345	5,000	518	7,500	2.25	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
		Fire rated						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	Standard	241	3,500	362	5,250	2.25	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
		Fire rated						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	Standard	241	3,500	362	5,250	2.25	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
		Fire rated						434	17.09	2.8	9.18	3.8	12.46	197	132.4
		Fire rated c/w st. st. wrap						442	17.40	2.8	9.18	3.8	12.46	212	142.5

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 or PA
Operating temperature	-30 °C to +90 °C (-22 °F to 194 °F)
Max. available length	60 m (200 ft) up to 8”
	30 m (100 ft) up to 14”

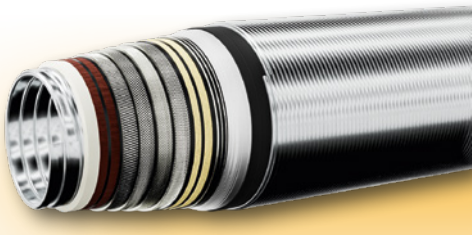
Features & Comments

- 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						258	10.16	1.6	5.25	2.1	6.89	106	71.2
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						317	12.48	2.2	7.22	2.9	9.51	138	92.7
207	8.0	Fire rated	259	3,750	389	5,625	2.25	336	13.23	2.4	7.87	3.2	10.50	143	96.1
		Fire rated c/w st. st. wrap						342	13.46	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	433	17.05	2.8	9.18	3.8	12.46	197	132.4
		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	482	18.98	3.2	10.50	4.4	14.43	223	149.8
		Fire rated c/w st. st. wrap						487	19.17	3.2	10.50	4.4	14.43	240	161.3

Production 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	40 m (131 ft)	60 m (200 ft)

Features & Comments

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

› For hoses with Tauroflon™ liner, longer lengths are available upon request

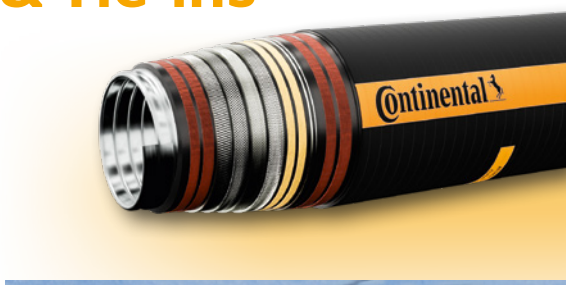
Technical Data | As per API Spec 16C with Tauroflon™ lining

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**
53	2.0	Fire rated	345	5,000	517	7,500	2.25	134	5.28	0.9	2.95	28	18.8
		Fire rated c/w st. st. Wrap						138	5.43	0.9	2.95	33	22.2
		Fire rated	690	10,000	1,035	15,000	2.25	159	6.26	0.8	2.62	46	30.9
		Fire rated c/w st. st. Wrap						165	6.50	0.8	2.62	52	34.9
		Fire rated	1,035	15,000	1,552	22,500	2.25	188	7.40	1.3	4.26	79	53.1
		Fire rated c/w st. st. Wrap						198	7.80	1.3	4.26	89	59.8
65	2.5	Fire rated	345	5,000	517	7,500	2.25	159	6.26	1.0	3.28	46	30.9
		Fire rated c/w st. st. Wrap						171	6.73	1.0	3.28	55	37.0
		Fire rated	690	10,000	1,035	15,000	2.25	159	6.26	1.0	3.28	46	30.9
		Fire rated c/w st. st. Wrap						171	6.73	1.0	3.28	55	37.0
		Fire rated	1,035	15,000	1,552	22,500	2.25	201	7.91	1.4	4.59	85	57.1
		Fire rated c/w st. st. Wrap						207	8.15	1.4	4.59	93	62.5
78	3.0	Fire rated	345	5,000	517	7,500	2.25	202	7.95	1.0	3.28	88	59.1
		Fire rated c/w st. st. Wrap						207	8.15	1.0	3.28	96	64.5
		Fire rated	690	10,000	1,035	15,000	2.25	187	7.36	1.0	3.28	62	41.7
		Fire rated c/w st. st. Wrap						187	7.36	1.0	3.28	67	45.0
		Fire rated	1,035	15,000	1,552	22,500	2.25	218	8.58	1.5	4.92	99	66.5
		Fire rated c/w st. st. Wrap						223	8.78	1.5	4.92	104	69.9
104	4.0	Fire rated	345	5,000	517	7,500	2.25	178	7.01	1.5	4.92	42	28.2
		Fire rated c/w st. st. Wrap						184	7.24	1.5	4.92	46	30.9
		Fire rated	690	10,000	1,035	15,000	2.25	237	9.33	1.5	4.92	104	69.9
		Fire rated c/w st. st. Wrap						242	9.53	1.5	4.92	112	75.3
		Fire rated	1,035	15,000	1,552	22,500	2,25	237	9.33	1.6	5.25	112	75.3
		Fire rated c/w st. st. Wrap						245	9.65	1.6	5.25	125	84.0

Technical Data | 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**
51	2.0	Fire rated	345	5,000	517	7,500	2.25	123	4.84	0.9	2.95	28	18.8
		Fire rated c/w st. st. Wrap						129	5.08	0.9	2.95	33	22.2
		Fire rated	690	10,000	1,035	15,000	2.25	123	4.84	0.9	2.95	28	18.8
		Fire rated c/w st. st. Wrap						129	5.08	0.9	2.95	33	22.2
		Fire rated	1,035	15,000	1,552	22,500	2.25	154	6.06	1.2	3.94	47	31.6
		Fire rated c/w st. st. Wrap						152	5.98	1.2	3.94	51	34.3
64	2.5	Fire rated	345	5,000	517	7,500	2.25	137	5.39	1.0	3.28	32	21.5
		Fire rated c/w st. st. Wrap						147	5.79	1.0	3.28	39	26.2
		Fire rated	690	10,000	1,035	15,000	2.25	137	5.39	1.0	3.28	32	21.5
		Fire rated c/w st. st. Wrap						147	5.79	1.0	3.28	39	26.2
		Fire rated	1,035	15,000	1,552	22,500	2.25	167	6.57	1.4	4.59	53	35.6
		Fire rated c/w st. st. Wrap						164	6.46	1.4	4.59	59	39.6
76	3.0	Fire rated	345	5,000	517	7,500	2.25	148	5.83	1.0	3.28	36	24.2
		Fire rated c/w st. st. Wrap						154	6.06	1.0	3.28	42	28.2
		Fire rated	690	10,000	1,035	15,000	2.25	148	5.83	1.0	3.28	36	24.2
		Fire rated c/w st. st. Wrap						154	6.06	1.0	3.28	42	28.2
		Fire rated	1,035	15,000	1,552	22,500	2.25	171	6.73	1.7	5.58	56	37.6
		Fire rated c/w st. st. Wrap						177	6.97	1.7	5.58	62	41.7
102	4.0	Fire rated	345	5,000	517	7,500	2.25	191	7.52	1.5	4.92	58	39.0
		Fire rated c/w st. st. Wrap						197	7.76	1.5	4.92	66	44.3
		Fire rated	690	10,000	1,035	15,000	2.25	191	7.52	1.5	4.92	58	39.0
		Fire rated c/w st. st. Wrap						197	7.76	1.5	4.92	66	44.3

Subsea Jumpers, Flowlines & Tie-ins
for gas service



Production, gas injection, gas lift, gas export

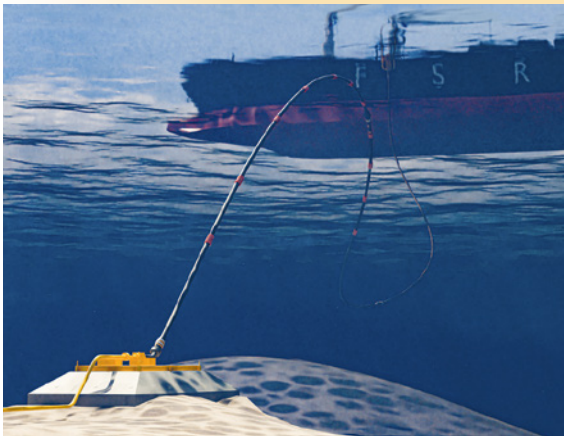
Standard
API Spec. 17K

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	60 m (200 ft) up to 8”
	30 m (100 ft) up to 16”

Features & Comments

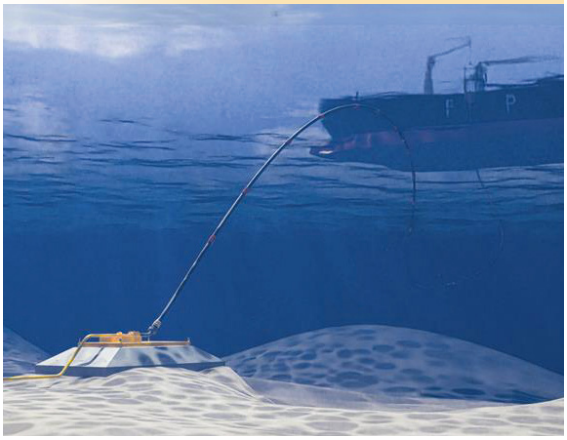
- Cathodic protection is available upon request
- Coupling materials meet NACE MR 01-75 / ISO 15156 latest edition
- Material of the end fittings is either carbon steel or duplex
- Material of the internal carcass is either 316L or 254 SMO
- Easier installation compared to rigid spools as no metrology 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	1,950	6,390	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	147	5.79	1.2	3.94	1.7	5.58	40	26.9
		Standard c/w st. st. wrap								153	6.02	1.2	3.94	1.7	5.58	45	30.2
65	2.5	Standard	345	5,000	517	7,500	2.25	1,300	4,260	159	6.26	0.9	2.95	1.2	3.94	45	30.2
		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	155	6.10	1.3	4.26	1.8	5.90	43	28.9
		Standard c/w st. st. wrap								167	6.57	1.3	4.26	1.8	5.90	49	32.9
78	3.0	Standard	345	5,000	517	7,500	2.25	2,600	8,530	158	6.22	1.0	3.28	1.4	4.59	36	24.2
		Standard c/w st. st. wrap								170	6.69	1.0	3.28	1.4	4.59	43	28.9
		Standard	517	7,500	776	11,250	2.25	1,700	5,570	176	6.93	1.1	3.61	1.5	4.92	55	37.0
		Standard c/w st. st. wrap								182	7.17	1.1	3.61	1.5	4.92	61	41.0
92	3.5	Standard	345	5,000	517	7,500	2.25	1,750	5,740	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	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
104	4.0	Standard	345	5,000	517	7,500	2.25	1,750	5,740	202	7.95	1.4	4.59	1.8	5.90	67	45.0
		Standard c/w st. st. wrap								214	8.43	1.6	5.25	1.8	5.90	75	50.4
		Standard	517	7,500	776	11,250	2.25	1,800	5,900	194	7.64	1.7	5.58	2.2	7.22	61	41.0
		Standard c/w st. st. wrap								206	8.11	1.7	5.58	2.2	7.22	69	46.4
130	5.0	Standard	345	5,000	517	7,500	2.25	1,000	3,280	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	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	279	10.98	2.0	6.56	2.7	8.86	101	67.9
		Standard c/w st. st. wrap								291	11.46	2.0	6.56	2.7	8.86	117	78.6
207	8.0	Standard	259	3,750	389	5,625	2.25	600	1,960	314	12.36	2.4	7.87	3.2	10.50	123	82.7
		Standard c/w st. st. wrap								325	12.80	2.4	7.87	3.2	10.50	136	91.4
255	10.0	Standard	155	2,250	233	3,375	2.25	280	910	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	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	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	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

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	60 m (200 ft) up to 8”
	30 m (100 ft) 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	1,950	6,390	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	690	10,000	1,035	15,000	2.25	3,250	10,660	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
		Standard	1,035	15000	1,552	22,500	2.25	3,000	9,842	129	5.08	1.2	3.94	1.2	0.8	35	23.5
		Standard c/w st. st. wrap								134	5.28	1.2	3.94	1.2	0.8	40	26.9
65	2.5	Standard	517	7,500	776	11,250	2.25	1,300	4,260	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	690	10,000	1,035	15,000	2.25	2,250	7,380	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	517	7,500	776	11,250	2.25	2,600	8,530	176	6.93	1.1	3.61	1.5	4.92	54	36.3
		Standard c/w st. st. wrap								183	7.20	1.1	3.61	1.5	4.92	62	41.7
		Standard	690	10,000	1,035	15,000	2.25	1,700	5,570	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	517	7,500	776	11,250	2.25	1,750	5,740	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	690	10,000	1,035	15,000	2.25	1,800	5,900	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	517	7,500	776	11,250	2.25	1,750	5,740	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	690	10,000	1,035	15,000	2.25	1,800	5,900	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	517	7,500	776	11,250	2.25	1,000	3,280	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	517	7,500	776	11,250	2.25	1,100	3,600	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	345	5,000	518	7,500	2.25	920	3,010	283	11.14	2.0	6.56	2.7	8.86	107	71.9
		Standard c/w st. st. wrap								291	11.46	2.0	6.56	2.7	8.86	117	78.6
207	8.0	Standard	345	5,000	518	7,500	2.25	600	1,960	314	12.36	2.2	7.22	2.9	9.51	123	82.7
		Standard c/w st. st. wrap								325	12.80	2.2	7.22	2.9	9.51	136	91.4
255	10.0	Standard	241	3,500	362	5,250	2.25	280	910	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	241	3,500	362	5,250	2.25	190	620	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	207	3,000	311	4,500	2.25	160	520	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	207	3,000	311	4,500	2.25	120	390	459	18.07	3.1	10.17	4.2	13.78	193	129.7
		Standard c/w st. st. wrap								465	18.31	3.1	10.17	4.2	13.78	210	141.1

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	60 m (200 ft) up to 8", 30 m (100 ft) 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	517	7,500	776	11,250	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										153	6.02	0.9	2.95	1.2	3.94	45	30.2
65	2.5	Standard	517	7,500	776	11,250	2.25	1,300	4,260	300	67,400	159	6.26	1.0	3.28	1.4	4.59	44	29.6
		Standard c/w st. st. wrap										171	6.73	1.0	3.28	1.4	4.59	51	34.3
78	3.0	Standard	517	7,500	776	11,250	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										182	7.17	1.1	3.61	1.5	4.92	61	41.0
92	3.5	Standard	517	7,500	776	11,250	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
104	4.0	Standard	517	7,500	776	11,250	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
130	5.0	Standard	517	7,500	776	11,250	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	283	11.14	2.0	6.56	2.7	8.86	107	71.9
		Standard c/w st. st. wrap										291	11.46	2.0	6.56	2.7	8.86	117	78.6
207	8.0	Standard	259	3,750	389	5,625	2.25	600	1,960	1,000	224,800	314	12.36	2.4	7.87	3.2	10.50	123	82.7
		Standard c/w st. st. wrap										325	12.80	2.4	7.87	3.2	10.50	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	459	18.07	3.1	10.17	4.2	13.78	193	129.7
		Standard c/w st. st. wrap										465	18.31	3.1	10.17	4.2	13.78	211	141.8

Chemical Compatibility Table

Medium	Product Lining									
	Tauro™ Cool		NBR		HNBR		PA		Tauroflon™	
Crude oil	82 °C	180 °F	100 °C	212 °F	100 °C	212 °F	100 °C	212 °F	130 °C	266 °F
Diesel oil	82 °C	180 °F	100 °C	212 °F	121 °C	250 °F	130 °C	266 °F	130 °C	266 °F
Water based mud	82 °C	180 °F	90 °C	200 °F	90 °C	200 °F	50 °C 90 °C	122 °F 200 °F	130 °C	266 °F
Oil based mud	82 °C	180 °F	100 °C	212 °F	121 °C	250 °F	130 °C	266 °F	130 °C	266 °F
Ester based mud	82 °C	180 °F	90 °C	200 °F	-		-		130 °C	266 °F
Xylene	-		-		66 °C	150 °F	66 °C 100 °C	150 °F 212 °F	130 °C	266 °F
Methanol	NR		25 °C 40 °C	75 °F 100 °F	25 °C	75 °F	50 °C 90 °C	122 °F 200 °F	130 °C	266 °F
Glycol	70 °C	160 °F	70 °C	160 °F	70 °C	160 °F	70 °C	160 °F	100 °C	212 °F
Hydrogen sulphide (<20 %)	-		-		60 °C 90 °C	140 °F 200 °F	130 °C	266 °F	130 °C	266 °F
Zinc bromide (40 %)	30 °C 82 °C	90 °F 180 °F	30 °C 90 °C	90 °F 200 °F	30 °C 50 °C	90 °F 122 °F	25 °C 50 °C	75 °F 122 °F	130 °C	266 °F
Zinc bromide (saturated)	30 °C	90 °F	30 °C	90 °F	30 °C 50 °C	90 °F 122 °F	25 °C 50 °C	125 °F 122 °F	130 °C	266 °F
Calcium bromide (25 %)	30 °C 50 °C	90 °F 122 °F	30 °C 50 °C	90 °F 122 °F	90 °C	200 °F	50 °C 90 °C	122 °F 200 °F	130 °C	266 °F
Calcium bromide (saturated)	30 °C 50 °C	90 °F 122 °F	30 °C 50 °C	90 °F 122 °F	90 °C	200 °F	50 °C 90 °C	122 °F 200 °F	130 °C	266 °F
Cesium formate (saturated)	82 °C	180 °F	100 °C	212 °F	100 °C 121 °C	212 °F 250 °F	50 °C 100 °C	122 °F 212 °F	130 °C	266 °F
Potassium formate (75 %)	82 °C	180 °F	100 °C	212 °F	100 °C 121 °C	212 °F 250 °F	50 °C 100 °C	122 °F 212 °F	130 °C	266 °F
Acetic acid (20 %)	82 °C	180 °F	90 °C	200 °F	90 °C	200 °F	50 °C 90 °C	122 °F 200 °F	100 °C	212 °F
Acetic acid (96 %)	50 °C	122 °F	50 °C 90 °C	122 °F 200 °F	50 °C 90 °C	122 °F 200 °F	25 °C 50 °C	75 °F 122 °F	100 °C	212°F
Formic acid	50 °C 82 °C	122 °F 180 °F	30 °C 50 °C	90 °F 122 °F	50 °C 90 °C	122 °F 200 °F	25 °C 50 °C	75 °F 122 °F	130 °C	266 °F
Hydrochloric acid (15 %)	60 °C 82 °C	140 °F 180 °F	60 °C 90 °C	140 °F 200 °F	30 °C 60 °C	90 °F 140 °F	25 °C 50 °C	75 °F 122 °F	130 °C	266 °F
Hydrochloric acid (37 %)	30 °C	90 °F	30 °C	90 °F	30 °C	90 °F	NR		130 °C	266 °F
Hydrofluoric acid (3 %)	30 °C	90 °F	NR		30 °C	90 °F	25 °C 60 °C	75 °F 140 °F	130 °C	266 °F
Hydrofluoric acid (10 %)	NR		NR		30 °C	90 °F	25 °C 60 °C	75 °F 140 °F	130 °C	266 °F
Sodium hydroxide (20 %)	-		-		-		50 °C	122 °F	66 °C	150 °F
Produced water	82 °C	180 °F	100 °C	212 °F	121 °C	250 °F	50 °C 90 °C	122 °F 200 °F	130 °C	250 °F

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


UT 755 L N

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 unrivaled.
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

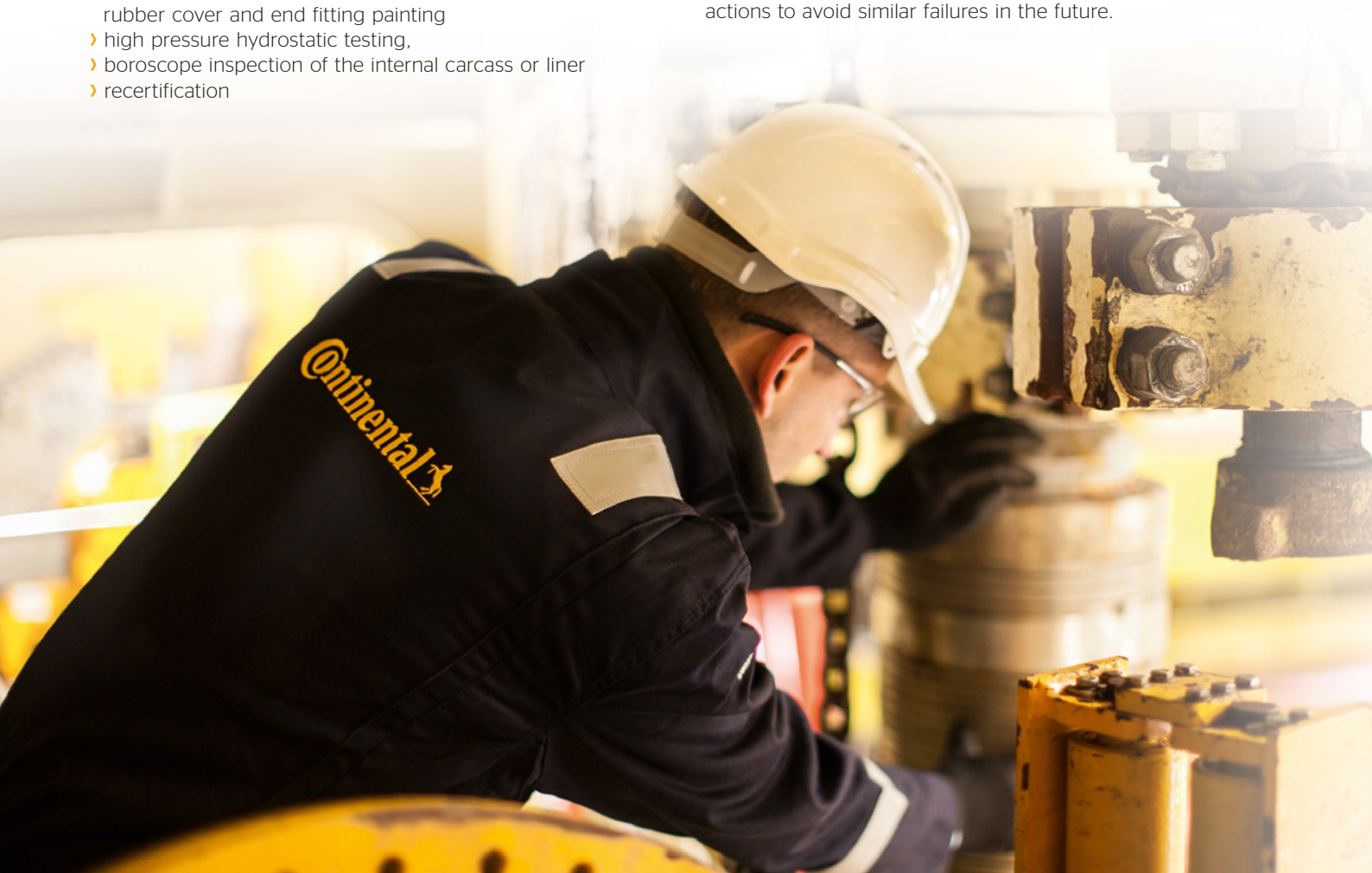
An instant overview of all flexible hose assemblies on all of your installations worldwide: ContiConnect is a web-based inventory management program designed for your peace of mind. Being able to see the current status of your FHAs at the click of a button means you can schedule maintenance, order timely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

As part of the Continental group, we 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.

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 20,000 psi.

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 Leader in Hose Solutions

Local Sales representation across the globe - ready to discuss your requirements.

Get more information about Continental Oil & Gas Hoses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