

ContiTech Rubber Industrial Kft.
Hose Technical Department




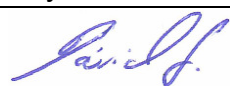

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INSTRUCTIONS FOR THE USE OF ROTARY DRILLING, VIBRATOR AND CEMENT HOSES

ACC. TO API SPEC. 7K / ISO 14693

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1. INTRODUCTION

The basic products acc. to the API Specification 7K / ISO 14693 standard are:

Rotary drilling hoses are used as the flexible connector between the top of the standpipe and the swivel that allows for vertical travel. It is usually used in lengths of 13,5 m (45 ft) or longer.

Standard sizes are: 2"-6".

Rotary vibrator hoses are used as flexible connectors between the mud pump manifold and the standpipe manifold to accommodate alignment and isolate vibration. These hoses are usually used in lengths in 9 m (30 ft) and less.

Cement hoses are used strictly for the conveyance of cement slurries at high pressure.

Standard sizes are: 2"-4".

Rotary drilling, vibrator and cement hoses can be supplied with API monogram, if the specification of the hose is included in the Standard.

There are some products, which are not indicated in the Standard API Spec 7K / ISO 14693, but users are buying them according to the design of the Rotary hoses, but adjusted to special requirements e.g. to a special liquid, temperature or pressure.

The discussed hoses can be:

- Large bore hydraulic hoses (at top drive drilling rigs).
- Compensator hoses at floating platforms.
- Decoking hoses for coke producing towers.
- Drag chain hoses for drilling platforms.
- Kelly, Valley, Mud hoses.
- Booster hose etc.

The purpose of the short instruction is to inform the users about the most important special knowledge for the use of the hoses. A more detailed general publication for handling, inspection, field test and use -if it is not yet present at the user- can be asked at the following addresses:

ContiTech Beattie Ltd.

Jubilee Industrial Estate

Ashington, Northumberland NE63 8UB England

Phone: +44 1670 528 700; Fax: +44 1670 520 535


e-mail: sales@contitechbeattie.co.uk WEB: www.contitechbeattie.co.uk

ContiTech Beattie, Corp.

11535 Brittmoore Park Drive Houston, TX 77041 USA

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ContiTech Rubber Industrial Kft.

6728 Szeged, Budapesti út 10. Hungary

Phone: +36 62 566-901; Fax: +36 62 566-999;

e-mail: sales@fluid.contitech.hu WEB: www.contitech-rubber.hu

Please use for inspection and maintenance of the hoses the API RP 7L as well.

2. CHECKS PRIOR TO INSTALLATION OF THE HOSES

Before installation, has to be checked, that the size, pressure range, service requirements, working temperature, bending radius and subsea or topside execution is according to the specification. Cross check to the hose data book and purchase order requirements.

The actual working conditions have to be limited to parameters in accordance with the manufacturer's design data of the hose, based on the order specification. It is important in this respect that the operator, when purchasing hoses, specifies as accurately as possible the composition of the fluid to be transported and the actual maximum working parameters.

3. DIRECTIONS FOR USE OF ROTARY DRILLING HOSES.

3.1 Determination of hose length* (acc. to API RP 7L 1st Edition, Addendum 2, A.1)

In order to avoid kinking of hose, the length of hose and height of standpipe should be such that while raising or lowering the traveling equipment, the bending radius of the hose will not be less than the value of the Minimum Bending Radius (MBR) provided in Table 7 and C.1 of API Spec 7K at the swivel when the traveling equipment is in its lowest drilling position and at the standpipe when the hose is in its highest drilling position. The recommended length of hose is given by the following equation (See figure):

$$L_H = L_T / 2 + \pi \cdot R + 2C + S$$

Where:

L_H	=	length of hose, m (ft)
L_T	=	length of hose travel, m (ft)
R	=	minimum radius of bending of hose (see API Spec 7K, Table 7 and C.1 for MBR value). Note: The MBR for certain hoses may be less than the value provided in this table, m (ft)
C	=	coupling length, m (ft)
S	=	0.3 m (1 ft) allowance for hose length tolerance and contraction when internal pressure is applied

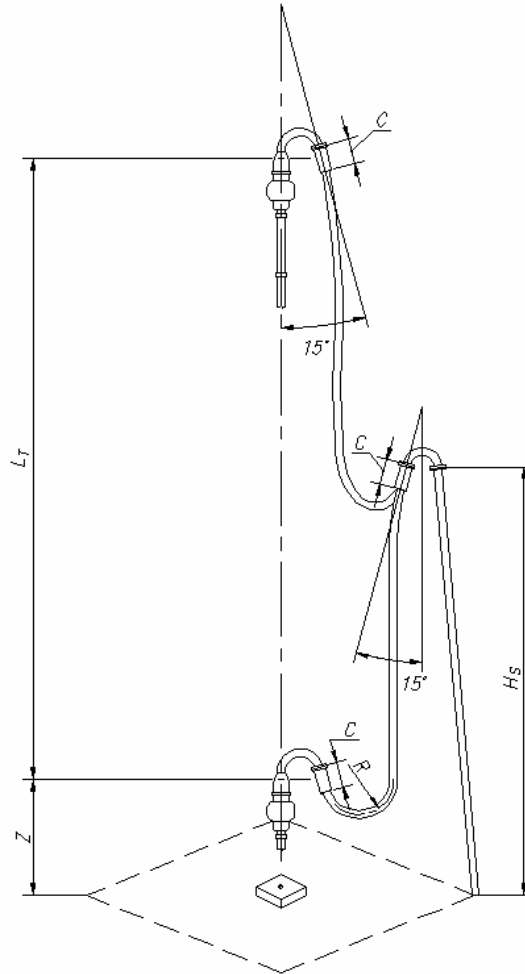
* Please contact the producer of hoses in uncertain conditions to model the configuration.

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3.2 Standpipe height (acc. to API RP 7L 1st Edition, Addendum 2, A.1)



The recommended standpipe height is given by the following equation (see figure above).

$$H_s = L_T/2 + Z$$

Where:

- H_s = vertical height of standpipe, m (ft)
- L_T = length of hose travel, m (ft)
- Z = height, m (ft), from the top of the derrick floor to the end of hose at the swivel when the swivel is in its lowest drilling position

Note: When the actual length of hose is greater than the length calculated as above, the standpipe height should be increased by one-half the difference between the actual length and the calculated length.

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3.3 Hose connections

The threaded connection on rotary hose is capable of handling the rated pressure and should not be welded to its connector, as this will damage the hose. Welding is in general forbidden on couplings. The connections between the rotary hose, standpipe and swivel should be consistent with the design working pressure of the system. The connections attaching the hose to the swivel and to the standpipe should be as nearly tangential as possible. The use of a standard connection on the swivel gooseneck will insure this relationship at the top of the hose. It is recommended that a 180-deg gooseneck shall be used on the standpipe connection if the standpipe is vertical. A 165-deg gooseneck should be used if the standpipe has the same slope as the derrick leg.

End connectors that are attached to the hose couplings with line pipe threads in accordance with API Specification 5B shall not be used in hose assemblies with working pressures exceeding 34,5 MPa (5000 psi). For hose assemblies with working pressures exceeding 34,5 MPa (5000 psi) the end connector shall either be butt-welded onto the hose coupling, or it may be machined from the same piece of material that the hose coupling made of (integral).

3.4 Some special handling instruction (beside the general instruction)

3.4.1 Receiving and deploying hose:

The hose is supposed to be lifted off rotating carousel vertically with the lifting collar in place. The crane must have a swivelling hook to lift the hose so that the twisting effect of the coiled hose is lost and not applied to the hose or crane lifting wires.

3.4.2 Lifting the hose without the carousel:

Lifting the hose without the carousel can damage the hose if care is not taken. The hose should be lifted using the lifting collar, ref attached GA 1 (Page 8), or with lifting straps as shown in GA 2 (Page 9).


Once the hose has started to leave the ground the crane operator must keep the lifting collar/ strap over the point of the hose, which is touching the ground. This will minimize the hose scuffing on the ground, ref GA 1 stage 2 and 3.

The sealing faces of the flanges must be protected from contact with the ground. Damage can occur when the hose is about to leave the ground completely.

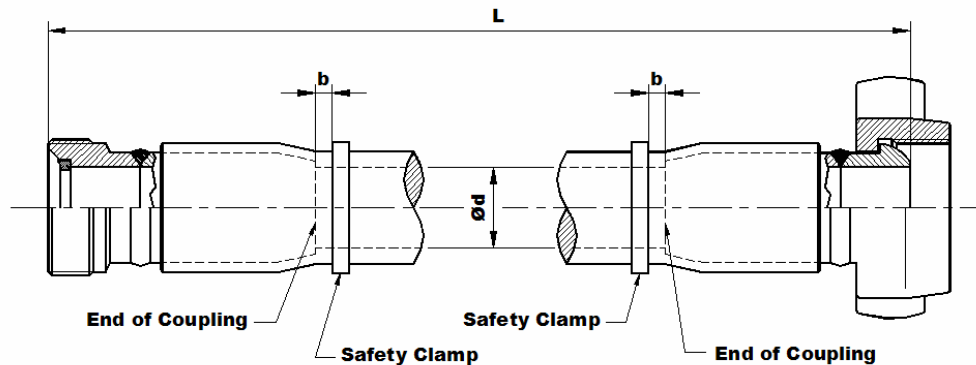
To avoid damage it is recommend that the hose should be lifted from the carousel only not the ground. If the hose is to be lifted from the ground the hose generally swings pendulum like, when it leaves the ground. Please ensure that the area around the hose is cleared when lifting takes place.

3.4.3 Hose should not be intentionally back twisted:

Twisting is sometimes employed to force the swivel bail out of the way. This places injurious stresses in the structural members of the hose body. In order to prevent twisting, it is suggested that a straight swivel be installed on one end of the hose. Each length of hose has a longitudinal lay line of a different colour than the hose cover. This should be used as a guide in making certain the hose is installed in a straight position. The employment of Hammer Unions, Grayloc joints, hubs and welded flanges is advantageous.

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3.5 Obligatory usage of safety clamps and chains



Rotary Vibrator and Drilling Hose Dimension

b - For Rotary Hose, this dimension shall be 6 in. (152.4 mm) to 18 in. (457.2 mm) from the inboard end of the coupling. For Vibrator Hose, this dimension shall be 6 in. (152.4 mm) to 10 in. (254.0 mm) from the inboard end of the coupling. Hose manufacturers shall mark the hose with the notation "Attach Safety Clamp Here."

3.6 Hose protection from vibration

Continual flexing of rotary hose reduces its service life. Pulsation dampeners of the proper size should be used in the mud line after the pumps to minimize vibration in the mud lines and hose. The pulsation dampener should be set at 10 % of the maximum pump pressure. The lines on the suction side of the pump should be precharged or operated with a flooded suction. The use of a suction hose is recommended to minimize pulsation.

3.7 Transport of muds

Basically the ContiTech rotary drilling, vibrator and cement hose can be supplied for -25 to 100 °C working temperature.

The use of oil base muds having an excessively high aromatic content will cause the hose inner liner to swell and shorten its service life. It is recommended that oil base muds be held to a minimum aniline point of 150°F (66°C). This means less than 30% aromatic content.

A special type can be ordered for 100°C working temperature as well. This type has to be ordered also if the aromatic content in the drilling mud is higher up to 40%, or esters are mixed in as well.



A number of drilling muds are in use: water, oil and ester based. Several additives are used at different companies or locations. If the user has no experience of rubber compatibility with a mud containing special additives, please send sample of mud for testing to the producer of the hose before the order.

3.8 Application of rotary hoses for other purposes

Where rotary hose is used as a flexible line between barges and offshore drilling rigs care must be taken so the hose is in alignment between both end connections. It is recommended that swivel joints be used at both ends. Drilling in rough weather and high seas resulting in abnormal flexing and jerking of the hose will cause premature failures.

The rotary drilling hose is not suitable for high pressure gas service.

No postwelding is allowed on the couplings.

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4. SERVICE INSPECTION

See:

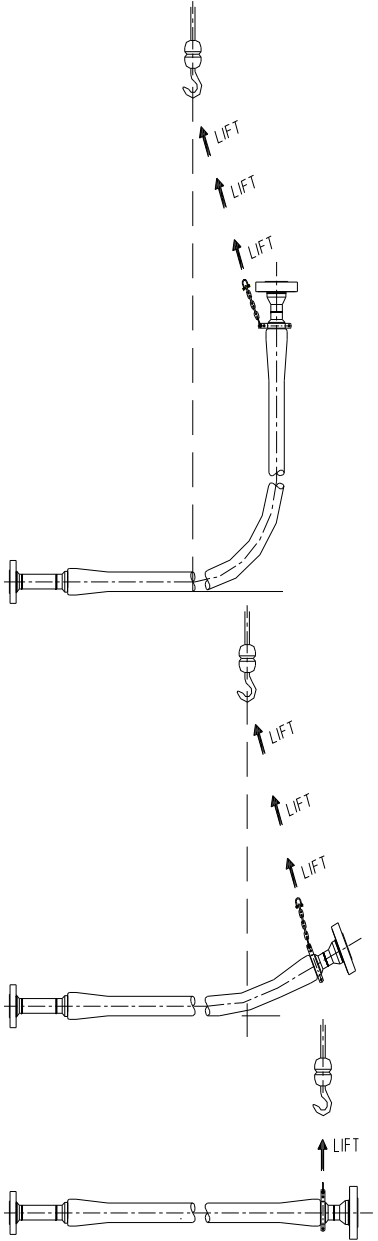
INSPECTION GUIDELINES FOR HP DRILLING AND PRODUCTION HOSES, doc.no.: ISS-059

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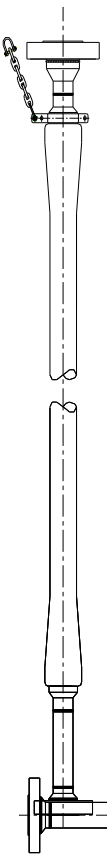


STAGE 3: CRANE SWIVEL HOOK ABOVE GROUND CONTACT POINT, SEAL FACES MUST NOT BE DAMAGED. PREVENT FLANGES DRAGGING OVER GROUND.

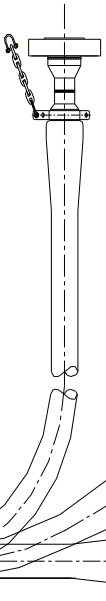
STAGE 2: HOSE LIFTED, CRANE SWIVEL HOOK POSITIONED ABOVE GROUND CONTACT POINT.

STAGE 1: HOSE LAID OUT FLAT, CRANE WITH SWIVEL HOOK CONNECTED TO LIFTING COLLAR.

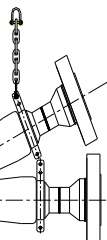
STAGE 4:



STAGE 3:



STAGE 2:



STAGE 1:

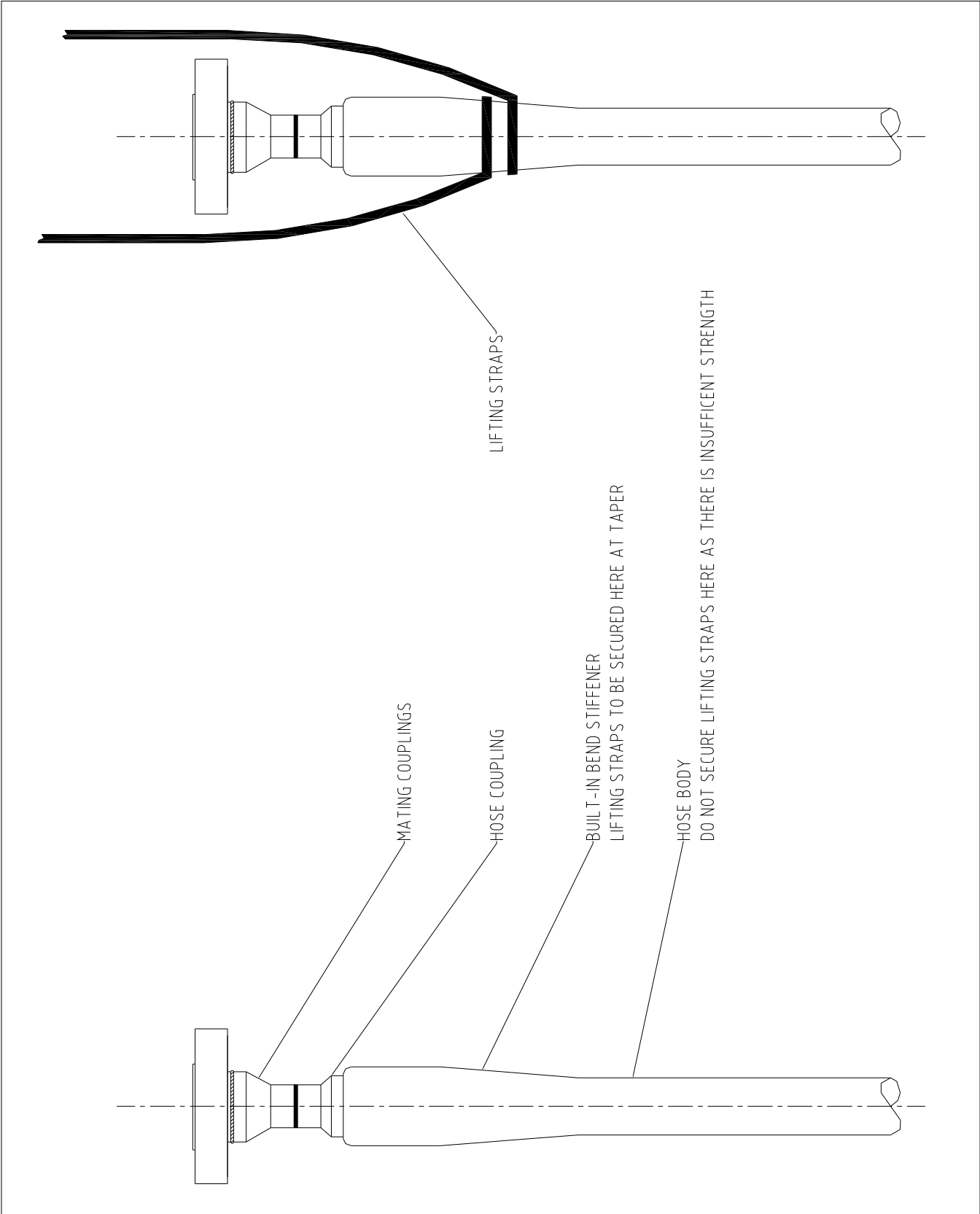


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GA2: High pressure hose guidance for lifting (Lifting Straps)