

# Working instruction

## Pump chains according to EU Directive 2006/42/EC

### Introductions

During the usage time of the pump chain this working instructions have to be conserved and easily available for the user. The working instructions are subject to technical development and only the latest edition is valid. The actual edition of working instructions can be downloaded on [www.roettgersketten.de](http://www.roettgersketten.de). The underlying pump chains correspond to the health and safety requirements of the EU Directive 2006/42/EG. The pump chains may be used only, if the content of this working instruction has been read and understood.

### 1. General conditions

Stainless steel pump chains in welded version are specially and solely designed to lift and lower pumps in water and wastewater segments. Will the pump chain be used in an other than the intended purpose (e.g. as 2-stranded sling chain) or even be modified, this declaration will be invalid. The maximum load capacity of the pump chain according to the inspection tag may not be exceeded (see item 2.3).

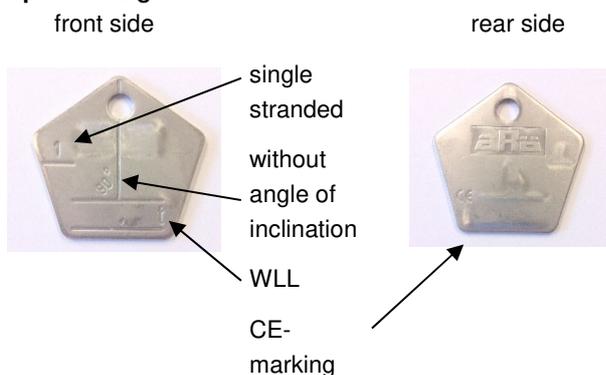
### 2. Usage/application

Before the first use, it has to be guaranteed that the delivered pump chain corresponds with those ordered. The certification or declaration of conformity of the pump chain has to be available for the user and the information about the load capacity according to the documentation has to correspond with those on the inspection tag.

#### 2.1 Inspection tag

The pump chain has got a stainless steel pentagonal inspection tag for single stranded lifting devices without angle of inclination (= only load lengthwise).

#### Inspection tag



#### 2.2 Designation on the inspection tag

A possible designation of the pump chain on the inspection tag will be arranged with the customer. A designation is normally not provided.

#### 2.3 Usage

While using the pump chain, following points must be considered:

- The pump chains have to be used only by competent persons (person must be familiar to the task) for the intended use under consideration of the restrictions. The user has to ensure that no loads will fall down. No loose parts shall be on the load or been carried on it. Loads shall be picked up and settled that way that an unintentionally roll away or fall over or slide off or collapse is avoided. No persons shall be endangered while using the pump for the proper use.
- The user shall wear safety gloves while usage.
- The use of detachable joining elements in connection with the pump chain is the responsibility of the user. The joining elements shall match the load capacity (WLL) of the pump chain.
- The load that has to be moved with the pump chain has to be lower or not exceed the maximum load capacity indicated on the inspection tag.
- Ambient temperature can reduce the maximum load capacity (WLL):  
 Range -40°C up to +200°C = 100% load capacity,  
 Range over +200°C up to +400°C = 50% load capacity.  
 The usage of the pump chain in a range of temperature beyond or above the indicated temperature is not permitted.
- It is not permitted to lift persons or dangerous loads (e.g. nuclear engineering material, liquid metal melting etc.) with the pump chain.
- Possible additional or restrictive requirements by the pump manufacturer shall be respected.
- Jerky or dynamic pulsating load of the pump chain shall be avoided.

- The pump chain shall not be used while it is twisted, corded up or knotted.
- The pump chain shall not be rubbed or tensed over sharp edges.
- The chain links shall align in load direction while loaded.
- The user has to ensure that the pump chain and its end stops are fixed correctly.
- Depending on the intended use or duration of use the tightness of the end stops shall be checked.
- The chain shall not have any visual defects (damages or wear, deformed chain links). In case of doubt the chain shall not be used and be checked by a competent person.
- In particular cases the utilization of the chain in combination with chemicals, e.g. acids or alkaline solutions, cosmetic or pharmaceutical products, aggressive steams, explosion-proof area or other types of notably dangerous areas have to be approved and arranged with the manufacturer.

#### 2.4 Storage

Store the pump chains clean and dry. During storage do not expose the chains to any chemical, thermic or mechanical influence, which could modify the performance characteristics.

### 3. Inspection / technical service / maintenance

The chain shall be checked regularly - at least once a year by a competent person. Depending on the use (e.g. frequently use at maximum load capacity, when using with reduced load capacity, when wear is high or when using in corrosive areas) the inspection interval is decreased.

Ensure that:

- The pump chains shall be cleaned at least once during the inspection interval in proper way. Further checking shall be done with a clean chain.
- No visible defects (e.g. damage as cracks or sharp grooves, deformed chain links, damaged mountings, significant corrosion such as pitting) are noticed.

- The inspection tag is available and the load capacity is readable; additional corrections of the inspection tag are not valid.
- The mean diameter is allowed to reach 90% (because of wear) of the nominal thickness. This diameter is determined by the average of two interrelated rectangular measurements at one point – preferably in the radius of the chain link – due to its wear behaviour.
- Put the chain out of operation, when the inner length of the chain link (pitch) increased of 5% versus the nominal pitch. This could be a result of overloading (lengthening) or because of material removal.
- The pump chain may not be damaged while maintenance (e.g. by changing single chain links or due to aggressive/abrasive detergents).
- Without consultation no surface treatment, heat treatment or mechanical operations (e.g. drilling) shall be performed at the chain. Cracks or damages shall not be covered by these measures.
- Inspection shall be performed in a proper area (adequate illumination).
- Only the manufacturer is allowed to repair welded connections.
- Inspection results shall be documented and stored and be available at any time upon demand. The same applies to repairs. By not later than three years the pump chain has to be submitted to a special inspection. Therefore the chain must be loaded with 1,5 times load capacity. After this the chain has to be controlled visually (dye penetrant method).

If these requirements are not fulfilled, the chain is to take out of operation.

Current status: 17.06.2019