

Bredel

Hose Pumps

NBR HOSES FOR FOOD CONTACT User Guide



NBR hoses for food contact

Additional user information on food safety

Original Instructions



Contents

1 Introduction	4
1.1 How to use this manual	4
1.2 Original instructions	4
1.3 Legislation on food contact materials	4
1.4 Materials for food contact	4
Approved materials	4
Production	4
1.5 The food hose	5
Hose identification	5
Hose storage	6
1.6 The lubricant	7
2 Installation and operation	8
2.1 Hose cleaning before first use	8
2.2 Hose installation and sanitary connection	8
2.3 Hose cleaning during hose use	11
2.4 End of life	12
2.5 Hose failure detection	12
2.6 Hose disposal	13
3 Declaration of conformity	14
4 Contact details	15

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1 Introduction

1.1 How to use this manual

This manual is intended as an addition to the product manual. With this manual qualified users are able to install, commission and maintain hoses suitable for food contact as mentioned on the front cover.

1.2 Original instructions

The original instructions for this manual have been written in English. Other language versions of this manual are a translation of the original instructions.

1.3 Legislation on food contact materials

The purpose of food regulation is to provide the basis for securing a high level of protection of human health and ensuring effective functioning of the internal market dealing with materials and articles intended to come into contact with food. For rubber articles that come into contact with food the European frame agreement, regulation (EC) No 1935/2004 describes the relevant provisions for entering European markets. The relevant code of Federal Regulations set out by the American Food and Drug Association, FDA describes the provisions for US markets.

Materials that can come into contact with food must be listed as safe and depending on contact time it must be proven that migration of material components remains within specified limits. For rubber articles the European frame agreement refers to the local laws applicable.

The Bredel NBR food hose meets the requirements of the Dutch food laws, Warenwet and the recommendations of the German federal institute for risk assessment BfR. The final product complies with:

- European regulation (EC) No 1935/2004 on materials and articles that come into contact with food.
- Warenwet, Regeling Verpakkingen en Gebruiksartikelen, 2.2.1, Appendix A, Chapter 3 Rubber articles, category 3.
- The Recommendations of the German Federal Institute for Risk Assessment, BfR Recommendation XXI, category 4.

1.4 Materials for food contact

Approved materials

The materials used for the NBR inner layer are listed in the positive lists under Warenwet A3 cat.3 and BfR XXI, cat 4.

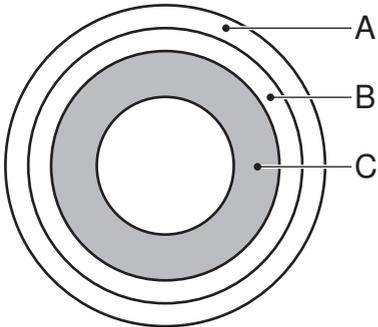
Production

The hoses are produced according good manufacturing practice in accordance with EC 2023/2006.

1.5 The food hose

The food hose has a black Nitrile Butadiene Rubber inner layer surrounded by 2 or 4 reinforcement layers. The reinforcement layers consist of nylon cord surrounded by natural rubber separation layers. The reinforcement layers are covered by a natural rubber outer layer.

The hoses are ground to a specific wall thickness with very narrow tolerance to guarantee optimal hose performance during operation.



- A:** Extruded outer-layer made of natural rubber.
- B:** Nylon reinforcement layers.
- C:** Extruded inner-liner made of nitrile rubber (black).



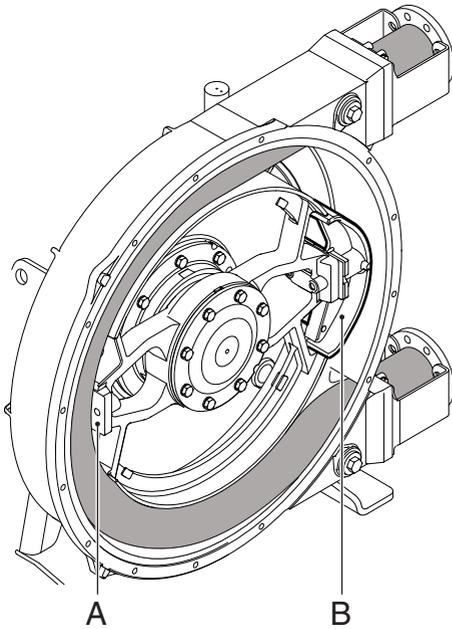
CAUTION

The food product pumped should be chemically compatible with the inner layer of the hose. In case of doubt contact your Bredel representative on what substances are suitable to pump.

Hose identification

The product is identified by a unique production number that is printed on the hose itself. This number offers full traceability to the original materials used for producing this hose.

Hose storage



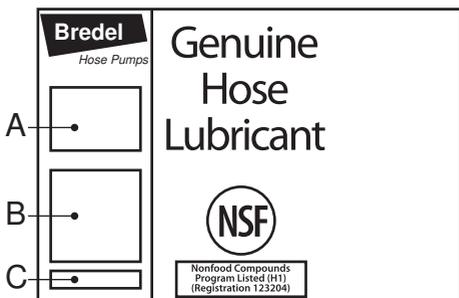
The maximum shelf life for this hose is 2 years. Store the hose in a dark and dry place with temperatures within 0°C (32°F) to 40°C (104°F). If the pump is stored for longer time the hose should be removed from the pump. For the Bredel pump series size 40 to 2100 it is also possible to store the pump with the hose installed. In that case turn the rotor with one shoe (B) between the ports and one shoe removed (A). Refer to the pump manual for details.

1.6 The lubricant

The contact area between hose and rotor is lubricated to reduce friction and improve the hose life. The lubricant is referred to as Bredel Genuine Hose Lubricant and is registered at NSF International as an acceptable lubricant with incidental food contact (H1) for use in and around food processing areas (www.nsfwhitebook.org, registration number: 123204). The lubricant is non toxic, food grade, and soluble in water.

The lubricant has a HMIS rating and liquid flammability class IIIB, flash point greater than or equal to 95°C (200°F). The Hazardous Materials Identification System (HMIS) is a numerical hazard rating developed as a compliance aid for the United States Occupational Safety and Health Administration (OSHA).

Each container has a label with information about the lubricant. The containers are available in various volumes. On the US labels the HMIS rating is indicated. Each label has the NSF mark with registration number.



- A:** Classification of liquid flammability, and HMIS rating (US only).
- B:** Container volume.
- C:** Reorder number.

WARNING



Only use Bredel genuine hose lubricant. The Bredel genuine hose lubricant is specifically designed for the Bredel pumps and hoses. Use of other lubricants can increase the wear of the pump and hose and decrease the efficiency of the pump.

Note: The Material Safety Data Sheet is available on request via your Bredel representative.

2 Installation and operation

2.1 Hose cleaning before first use

During production and transportation the hose has been handled with great care to prevent contamination of the inside of the hose. Nevertheless the inside of the hose should be cleaned prior to installation. In order to avoid any impairment of the product to be conveyed concerning taste or odour we recommend the following cleaning procedure:

1. First, fill the hose with hot water (~ 60°C / 140°F) and leave it for at least 10 hours. Empty the hose and flush with tap water.
2. As a next cleaning step use one of the following processes:
 - Water – at 90°C (194°F) for a maximum duration of 20 minutes.
 - Steam – 2 times at 120°C (248°F), each time max. 30 minutes followed by cooling down to room temperature.
 - Treatment for at least 24 hours with a hydrous cleaning solution +40°C (+104°F) consisting of 4g sodium hydroxide and 5.8g sodium chloride per 1 liter of water.

Two or more of these steps may also be used consecutively, but flush with cold water between the steps.

3. Rinse with tap water.



WARNING

When using the recommended products for cleaning or disinfection, please make sure that all necessary directions for use and warning directions of the safety data sheets have been carefully observed.



CAUTION

Nitrile rubber (NBR) is incompatible with strong oxidizing chemicals such as sodium hypochlorite, peroxides (hydrogen peroxide, peracetic acid) and nitric acid. Cleaning agents based on such chemicals should be avoided.

2.2 Hose installation and sanitary connection

Note: To install a hose refer to the procedure in the product manual. In case of doubt contact your Bredel representative.

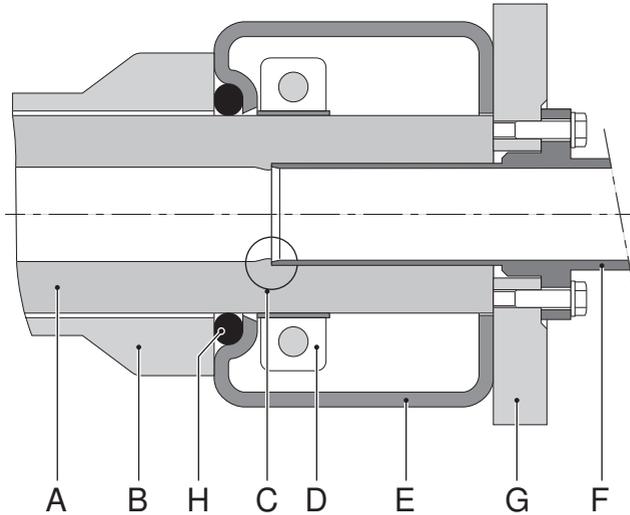
In addition to the hose installation procedure as described in the product manual, you must create a smooth connection between the hose and the stainless steel insert. The hose clamp position is very important, refer to the drawings below for a proper hose connection. The hose clamp should be installed against the bracket E (example 1) or at the indicated position on the bushing G (example 2).



WARNING

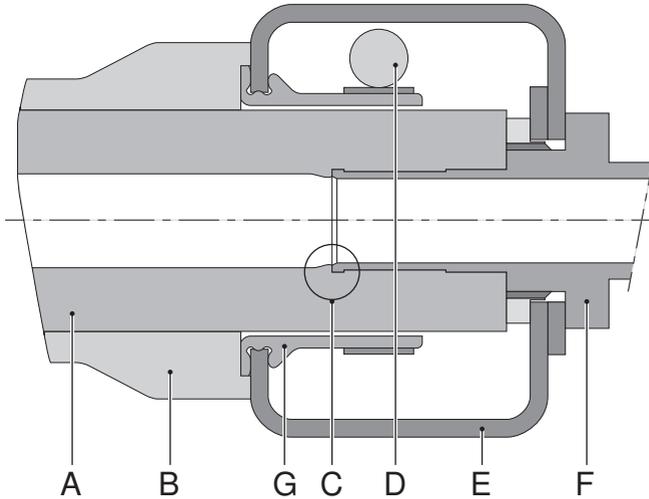
Only use genuine Bredel parts for a proper hose connection.

Example 1 Sanitary hose connection with a hose bore greater than 20mm.



- A:** Pump hose
- B:** Pump
- C:** Detail Z (see detail image on page 12)
- D:** Hose clamp
- E:** Bracket
- F:** Stainless steel insert
- G:** Pipe flange
- H:** O-ring

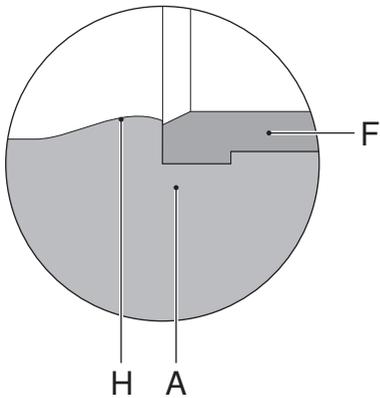
Example 2 Sanitary hose connection with a hose bore less than 20mm.



- A:** Pump hose
- B:** Pump port
- C:** Detail Z (see detail image on page 12)
- D:** Hose clamp
- E:** Bracket
- F:** Stainless steel insert
- G:** Bushing

Note: There are several options for sanitary connections to the process piping. Contact your Bredel representative for further details.

Detail Z (example)



The position of the hose clamp (D) relative to the end of the insert (F) is crucial to make sure that the hose deformation (H) caused by the tightened hose clamp (D) results in a smooth transition between the pump hose (A) and the insert (F).

2.3 Hose cleaning during hose use

A common way to clean the inside of the hose is operating the pump whilst pumping clean water. If there is no special bypass line in the process piping for cleaning cycles, the pump must be disconnected from the process piping first. Make sure the water temperature remains below 80°C (176°F). The use of additional cleaning agents should always be checked against chemical compatibility of the hose. Always avoid temperatures higher than 80°C (176°F) and cleaning times exceeding 30 minutes.

In case of cleaning with steam (SIP) limit the temperature to 120°C (248°F) (maximum of 2 bara/ 29 psia steam pressure), and do not clean longer than 30 minutes.

For further information on cleaning processes and to confirm yours is suitable, contact your Bredel representative.

CAUTION



Nitrile rubber (NBR) is incompatible with strong oxidizing chemicals such as sodium hypochlorite, peroxides (hydrogen peroxide, peracetic acid) and nitric acid. Cleaning agents based on such chemicals should be avoided.

Note: Cleaning agents based on sodium hydroxide (NaOH) and phosphoric acid are generally suitable to use in cleaning the hose elements.

CAUTION



Cleaning agents used in cleaning cycles may contain chemicals that are not chemically compatible with the inner layer of the hose. Therefore you must only use cleaning agents which are allowed to be used in your specific production process, and are not chemically affecting the hose material. For chemical compatibility information contact your Bredel representative.

WARNING



All hoses may release quantities of rubber into the product stream, particularly immediately after hose installation, a hose burst or normal wear and tear. Whilst the rubber released will be food grade particles, these may cause end-user concerns about contamination of the product stream. It is the responsibility of the end user to ensure that suitable particle capturing devices, such as filters, are fitted into the pump's discharge line. Please note that these precautions may mitigate the risk, however, they may not eliminate the entire risk of particle release. Watson-Marlow Bredel B.V. and any other affiliate companies disclaim liability for any and all losses (including indirect and consequential losses) incurred as a result of particle release from the hose, irrespective of whether the advised precautions have been followed or not.

2.4 End of life

Due to the repetitive compression cycles the hose will eventually break down. A hose failure can be detected by looking at the lubricant fluid level inside the pump. If the fluid level is far above the lubricant level as indicated on the inspection window this is an indication for a hose failure.

After a hose failure the pump should be stopped and thoroughly cleaned. See the product manual for the cleaning- and hose (de)installation instructions.



WARNING

After a hose failure it cannot be guaranteed that the pumped fluid has only been in contact with the hose.

2.5 Hose failure detection

If a hose failure occurs you should immediately stop the pump. It is strongly advised to use a high level float switch to make sure the pump stops after a hose failure. See the product manual for additional details or contact your Bredel representative.

For procedures on removing the hose, cleaning instructions and installing the hose, refer to the pump product manual.

2.6 Hose disposal

After use the hose should be disposed in accordance to the local laws applicable for rubber articles. In case of doubt contact your Bredel representative.

3 Declaration of conformity

Original



EC declaration of conformity

For FOOD contact materials

According to Regulation (EC) No1935/2004 on materials and articles intended to come into contact with food.

We,

Watson-Marlow Bredel B.V.,

herewith declare, on our own responsibility that the following articles fulfil all the relevant provisions of Regulation (EC) No 1935/2004:

Peristaltic hoses with inner liner made of Nitrile Butadiene Rubber (NBR), labelled as "NBR for Food Contact"

28-010061	28-040061	28-300001061
28-015061	28-050061	28-300002061
28-020061	28-065061	28-300003061
28-025061	28-080061	28-300007061
28-032061	28-100061	28-300008061

for transportation of various kinds of fluids.

The hoses comply with the Dutch Packaging and Utensils regulation for category 3 rubber article as defined in Chapter III of Appendix A of "Regeling Verpakking en Gebruiksartikelen" (Packaging and Utensils regulations) of 20 November, 1979

**Regeling Verpakkingen en Gebruiksartikelen, Appendix A,
Chapter III, category 3**

The hoses comply with the Recommendations of the German Federal Institute for Risk Assessment,
BfR Recommendation XXI, category 4.

The undersigned is responsible for compilation of the technical file and makes this declaration on behalf of the manufacturer.

J. van den Heuvel,
Managing Director

Watson-Marlow Bredel B.V.
Sluisstraat 7, 7491 GA Delden, The Netherlands

May 2019



TS16-029

4 Contact details

Watson-Marlow Bredel B.V.
P.O. Box 47
NL-7490 AA Delden
The Netherlands

Telephone: +31 (0)74 3770000

Fax: +31 (0)74 3761175

E-mail: Bredel@wmftg.com

Internet: www.bredel.com

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28-29211330

TS18-017-rev A

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