



## TTSP-TTSD SILICONE HOSES Series

Suction and delivery hose suitable for pharmaceutical, cosmetic and food products. Phthalates free tube, tested in compliance with 1907/2006/CE (REACH). Tested in compliance with USP XXXII class VI, not cytotoxic according to ISO 10993 Section 5:2009. Not intended for use as an implant material. Not suitable for blood or human fluids..



### POSSIBLE CONFIGURATIONS

#### HOSE WITHOUT CONNECTION



#### REUSABLE CONNECTION



#### CRIMPED CONNECTION



TUSIL is not intended for implantation and is not be used for continuous steam applications.

### HOSE KEY FEATURES

- TUBE** silicone, white, phthalates free, tested in compliance with 1907/2006/CE (REACH). Meets FDA CFR 21 PART 177.2600, USP XXXII class VI requirements, European Pharmacopoeia 3.1.9 Ed. VII 2011, ISO 10993 Sections 5,10,11:2009, BfR Recommendation XV & XXI Cat. 2, European Reglement 1935/2004/CE, DM 21/03/1973 e seguenti, Japan Ministry of Health and Welfare Notice No.370,1959, No.201,2006, 3A Sanitary Standard Class II
- REINFORCEMENT** high temperature resistant plies, **with (TTCF...SP)** or without (TTCF...SD) stainless steel wire helix
- COVER** smooth, silicone, white, heat, ageing, ozone and abrasion resistant, glossy cover
- STERILIZATION** Refer to guidelines for cleaning and sanitizing (last page)
- MARKING** Transfer tape SILPURE

### HOSE TECHNICAL CHARATERISTICS

- TEMPERATURE RANGE** -60°C / +200°C ( -76°F / +392°F ) The operating temperature of the hose is directly dependent upon the specific fluid been conveyed and the length of time the fluid is in contact with the hose
- VACUUM** 675 mmHg (26,6 inHg) **(only TTCF...SP with wire helix)**
- NORM** ISO 1307 for dimensional tolerances

### HOSE SPECIFICATIONS

#### without wire helix

#### with wire helix

CODE	I.D. DN - BS	O.D. mm ...SD	Burst P. (bar) *	Work P. (bar) *	min. Bend rad. (mm)	O.D. mm ...SP	Burst P. (bar) *	Work P. (bar) *	min. Bend rad. (mm)
TTCF013.0...	1/2"	21	45	15	60	23	45	15	60
TTCF019.0...	3/4"	29	39	13	80	29	39	13	80
TTCF025.0...	1"	35	30	10	100	35	30	10	100
TTCF038.0...	1"1/2	48	21	7	155	49	21	7	155
TTCF051.0...	2"	61	18	6	210	62	18	6	210
TTCF063.5...	2"1/2	73,5	15	5	260	76,5	15	5	260
TTCF076.0...	3"	86	12	4	310	89	12	4	310

(\* ) NOTE: Data refer to ambient temperature (20°C) and static conditions; we recommend a reduction of 20% working pressure for every 100°C of temperature increase. Other diameters, wall thickness and pressure only on specific request.



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## RADIAL SANITARY FITTINGS – crimp and reusable

Sanitary clamp fittings are secured to the hose by a collar with a 360° circumferential crimp / nut.

**COMPRESSION SEAL** This 360° seal and the particular internal chamfer design assures cleanliness and prevents contamination or material buildup at the point where the fittings insert meets the hose.

**SURFACE FINISH** the internal surface finish meets or exceeds the Pharmacopoeia standards.

**OPERATING CONDITIONS** Design Pressure up to 6 bar tested at ambient temperature, except case where the pressure is limited by the hose.

**MARKING** Crimp ferrules may be permanently marked for full traceability or operating parameter.

**AVAILABLE DOCUMENTATIONS** on request:

- 3.1 certificate according to 10204
- Surface Roughness certificate
- FDA certificate
- Electrical Continuity

## STAINLESS STEEL FITTINGS STYLES

### CRIMP CONNECTION



### REUSABLE CONNECTION (only TTCF...SD hose)



#### SANITARY CLAMP

Sanitary clamp fitting in size from 1/2" up to 3" I.D. available on stock according to standard pharma specifications.



#### CLAMP ADAPTOR

Sanitary adaptors that facilitate connections between a variety of fittings and hoses



#### OTHER CONNECTIONS ON REQUEST

Butt weld fittings maintain full flow through the I.D., male and female NPT or GAS pipe thread fittings are internally finished to sanitary quality and incorporate the internal chamfer feature.



Aerreinox offers a complete line of stainless steel fittings including hose assemblies. All Aerrexinox fittings are constructed from 316L stainless steel, have a standard surface finish of Ra<0,5 micron, and are secured to the hose by a collar with a 360° circumferential crimp. Each hose crimp design has been performance tested by our QC.

As an option, a pressure test certificate can be provided for the hose assemblies. A low impact radial crimp technique ensures smooth hose to fittings transition thereby minimizing bacteria traps and product hold-up. Hose assemblies can be sanitized with short-term CIP/SIP cycles.

Various hose fittings style available:

- Sanitary clamp fractional
- Sanitary clamp
- Clamp adaptor and elbows
- Butt weld fittings
- Male or female pipe thread



## GUIDELINES FOR CLEANING AND SANITIZING HOSE

The life of the hose is affected by the cleaning and sanitizing process due to the mechanical and chemical stresses which occur during the cleaning and sanitizing procedure. The service life of rubber hoses is directly dependent on frequency and time of exposure to PHYSICAL and CHEMICAL disinfectants. Users should frequently monitor the physical condition of the rubber hose material product contact surfaces. Such observations are necessary to determinate the actual sanitary service period of hoses. The present tabulation is based on tests and on generally available sources, and believed to be reliable. However must be used as a guidance only since it does not take in consideration all variable that may be encountered in actual use such as and not limited to duration of exposure and stability of the fluid and possible contamination.

	Medium	Concentration	Temperature
<b>RINSING</b>	Hot Water	-	Max 90°C
<b>PHYSICAL DISINFECTANT</b>	Steam	-	Max 135°C – Max 18min.
<b>CHEMICAL DISINFECTANT</b>	Acid (i.e. nitric acid)	0,1% 2,0%	Max 65°C Max 25°C
<b>CHEMICAL DISINFECTANT</b>	Alkaline Solution (i.e. caustic soda)	2,0% 4,0%	Max 65°C Max 25°C
<b>CHEMICAL DISINFECTANT</b>	Disinfectant (i.e. peracetic acid)	1,0%	Max 25°C

### THE CLEANING AND SANITIZING SUGGESTIONS SET FORTH BELOW ARE GUIDELINES ONLY

It is necessary that all applicable government regulations pertaining to the cleaning and sanitizing of the food hoses and food hoses assemblies be followed and adhered to and which governmental regulations supersede the guideline contained herein.

The life of the hose is affected by the cleaning and sanitizing process due to the mechanical and chemical stresses which occur during the cleaning and sanitizing procedure. The service period of rubber hoses is dependent on their formulation and the environment of use which in turn is influenced by the product, process temperature, cleaning and bactericidal compounds and time of exposure. Users should frequently monitor the physical condition of the rubber hose material product contact surfaces. Such observations are necessary to determinate the actual sanitary service period of rubber hoses. It is further recommended that the rubber hose be replaced before surface imperfections or sloughing occurs. Routine replacement schedules should be established and followed.

Food hose users should be guided by their own, if applicable, or specific industry cleaning and sanitizing procedures and standards. For example the wine industry may have different standards than the dairy industry and any standards applicable to a specific industry supersede the guideline contained herein.

The cleaning and sanitizing of food hoses and hose assemblies is intended to remove any food particles or residues including detergents or disinfectant that may be the source of harmful bacteria microorganism or other sources of contamination. The effectiveness of the guidelines contained herein are dependent upon the practices and care taken by the users.

### CLEANING AND SANITIZING STEPS

- **FREQUENCY** The frequency of the cleaning and sanitizing cycle needs to be done according to the type of food or beverage being conveyed and the contamination risk level. In principle, the cleaning and sanitizing process should be conducted on a frequent basis.
- **WASHING** Thoroughly washing the hose with hot potable water is the first step in the cleaning process. Washing with hot potable water will facilitate the cleaning of the hose but does not eliminate the need to clean the hose with the appropriate detergent followed by the disinfection of the hose. The temperature of the hot water and duration of the washing/rinsing cycle will depend upon the characteristic of the material/products being conveyed.  
The initial washing/rinsing with hot potable water should be completed as soon as possible after the conveyance process is completed. All residual water and residue from the initial washing/rinsing cycle must be drained away completely.
- **CLEANING/DISINFECTING** The selection of a specific detergent and of a specific disinfectant will depend on the material/products being conveyed. The recommendation of the manufacturer of the detergent and of the disinfectant should be strictly followed especially regarding concentration levels. After the cleaning of the hose with detergent followed by the rinse of it with potable water, the hose must be sterilized either with steam or with chemical solution. Steam is classified as "Physical" disinfectants: its effectiveness in eliminating bacteria and other contaminants varies according to the material/products being conveyed and the procedure employed by the users.  
Chemical disinfectant such as caustic soda, nitric acid, per-acetic acid, phosphoric acid, chloroacetic acid or other acids suitable for disinfecting food hoses must be carefully selected to ensure optimal effectiveness while also assuring maximum safety and health. When selecting a particular disinfectant it is necessary to pay strict attention to concentration levels, temperature, cycle time, etc. The type of product/material being conveyed be taken into consideration when selecting a specific disinfectant.  
As soon as the disinfecting treatment with chemical solutions is made, the hose must be carefully and for a sufficiently long time rinsed with potable water to eliminate any chemical residues from the disinfecting treatment.
- **PROCESS CONTROLS** The result of the cleaning and sanitizing process must be regularly checked to ensure that all contamination and residuals have been eliminated. Any non conforming events need to be addressed in a corrective action procedure.

**Get the information you need and more at : [info@aerreinox.it](mailto:info@aerreinox.it)**

In the interests of development and improvement of the product, we reserve the right to change the specifications without prior notice.

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