

*made in*  
**CLEANROOM**  
*products for industry*



*„clear vision – clear profit“*

# *Cleanroom in Tubes International*

*„clear vision - for those who demand more“*

**Tubes International** meets the requirements of very demanding customers by providing highly parameterized industrial hoses and hose assemblies that are used in very specialized and critical applications.

Requirements regarding controlled working environment are traditionally associated with biotechnological, pharmaceutical, medical, food, computer, aircraft and semi-conductor industry.

Our company – supplier of hose and hose assembly solutions for the industry, as one of first in East-Central Europe, has made an effort to ensure the highest standards in terms of assembly purity, packaging and customizing hoses and hose assemblies.

**CLEAN ZONE - CLEANROOM** is equipped with professional appliances that allow effective control of internal and external surface of hoses and hose assemblies. It enables secure packaging and customizing products in controlled working environment.

Today such hose features as: purity, mirror like surface, crystal clear surface, transparency, smoothness take on a new light in Tubes International. For more information on Cleanroom quality products or any technical details regarding this subject, please contact our company.





### Cleanroom according to ISO standard:

„Cleanroom“ is an enclosed area specially designed to control strictly defined environment parameters such as e.g.:

- air flow pattern
- particle movement, vibrations, noise, movement, movement of living organisms, lighting
- number of airborne particles
- temperature
- humidity
- air pressure

Particle monitoring in cleanroom includes:

- retention of particles and microbes in cleanroom
- concentration and distribution of particles



### Cleanroom classification system according to ISO

Class	0,1 µm	0,2 µm	0,3 µm	0,5 µm	1 µm	5 µm
ISO 1	10	2				
ISO 2	100	24	10	4		
ISO 3	1000	237	102	35	8	
ISO 4	10 000	2 370	1 020	352	83	
ISO 5	100 000	23 700	10 200	3 520	832	29
ISO 6	1 000 000	237 000	102 000	35 200	8 320	293
ISO 7				352 000	83 200	2 930
ISO 8				3 520 000	832 000	29 300
ISO 9				35 200 000	8 320 000	293 000

## PRODUCTION IN CLEANROOM TYGON® HOSES

*TYGON® is a registered trademark of thermoplastic hoses manufactured by Saint-Gobain Performance Plastics Corporation. There are many formulations (compounds) of the materials used to produce the hoses, they include: silicone, PVC, polyurethane, fluoropolymers, thermoplastic elastomers and other materials.*

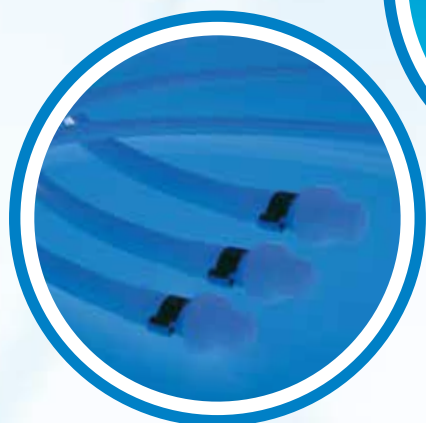
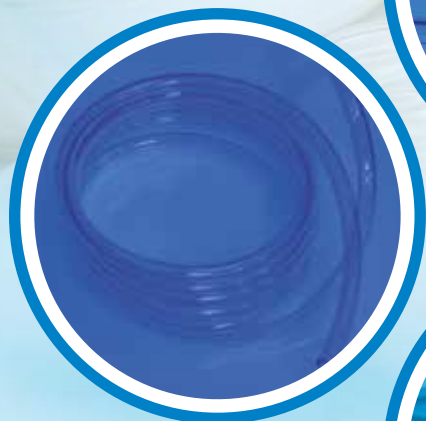
*Excellent physical and chemical properties of these materials added to their perfect finish resulted in a unique, state of the art product. The distinctive features of the hoses include: transparency, flexibility, kink resistance, resilience, gas permeability, chemical resistance, surface smoothness. They are non-haemolytic, non-toxic and biocompatible.*

*The most sophisticated formulations of the compounds employed to manufacture TYGON® hoses allow for their use in diverse applications in: food, chemical and petrochemical industry, pharmacology, medicine, biotechnology, in peristaltic pumps and laboratories.*

*The TYGON® brand name is commonly used and recognized by scientists and engineers, associated with the highest quality and perfect finish.*

*Basic application of **TYGON®** hoses:*

- pharmaceutical industry and biotechnology
- semiconductors, electronics
- peristaltic pumps
- medicine (hospitals and laboratories)
- chemical processes
- scientific and industrial laboratories
- food industry



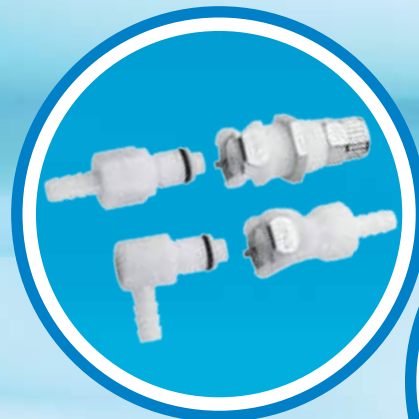


CPC quick release plastic couplings are designed for general industry, biopharmaceutical, medical, chemical, food and packaging application. A version with an automatic shut-off valve prevents leaks and thus increases safety of its operator. A wide choice of materials allows to select the quick release coupling for almost any application. One hand operation with an audible click which confirms secure connection. Many coupling options allow easy attachment to threaded connection, in-line, hose systems, panel mounting, etc. A product line of CPC couplings makes a total of over 4000 items.

They are available as individual male or female parts with different connections or as ready-to-use sets to be fit into a hose (so called „Line-In“).

Miniature couplings are designed for ink printing installations, blood, coolants, gas chromatography, etc. Easy operation - only twist two parts of the coupling against each other to connect them. In addition, the coupling allows some rotation of the hose when connected. This feature prevents kinking and accidental disconnection. The couplings made of acetal are available in black colour as an option.

Small quick release couplings designed for gas detection, medical devices, chemical analysers, ink printing, components of optical equipment, etc. Their specific design (there are no locking balls or ferrules) allows easier and firmer one hand connection and disconnection. An audible click confirms secure connection. Also available with BSPT male thread.



EXAMPLES OF MECHANICAL DAMAGE  
CAUSED BY IMPROPER HANDLING

*bad practice*

*good practice*



Damaged packaging



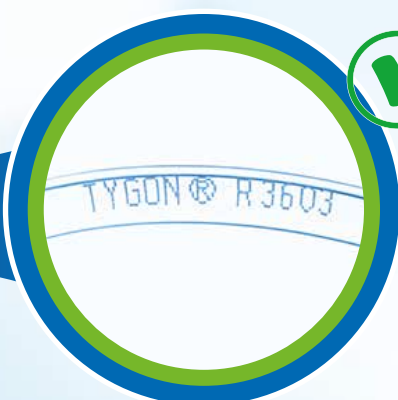
Kinked hose



Ragged hose edge



Abrasion of external surface



*damage examples above have negative impact on hose service in an installation*



## HOSE ASSEMBLY AND PACKAGING IN CLEANROOM, IN TUBES INTERNATIONAL

*In order to prevent improper handling of items assembled in Cleanroom, our company introduced an airtight packaging system and labelling system with all important information on the product.*

*Each label indicates:*

- inner and outer diameter
- date of production, packaging
- code (set number)
- LOT number
- length, pieces



*Tubes International is an official distributor of Saint - Gobain Performance Plastics  
the world's leading producer of high-performance polymer products!*

*Other products available from SAINT GOBAIN:*



Bio-Simplex™  
Gamma Irradiated Bottle Assembly Systems



Pure-Fit® SIB®



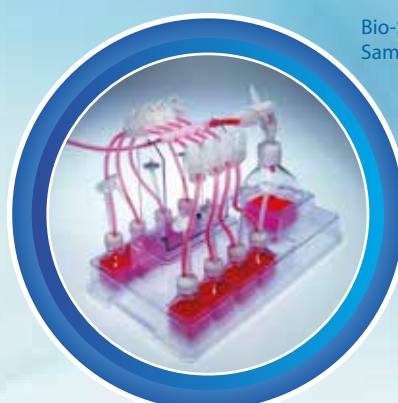
BarbLock®



Pure-Fit® TC



Bio-Simplex™ Ultra Carboys



Bio-Simplex™  
Sampling Manifold Systems



Pure-Fit® Tru Valve



Sanitary Tank  
(Critical Process Vessels)