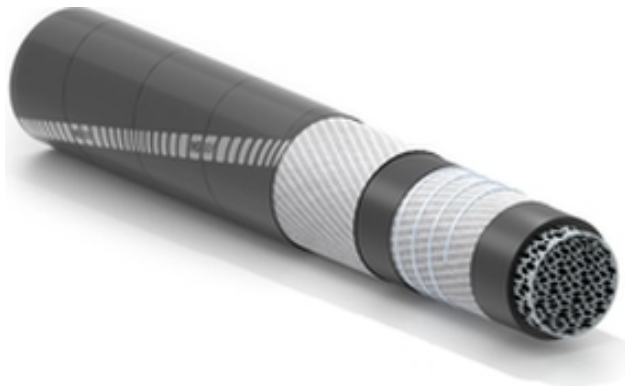


Thunderflex



Conductive hose for chemicals, food, petroleum, PE-UHMW tube



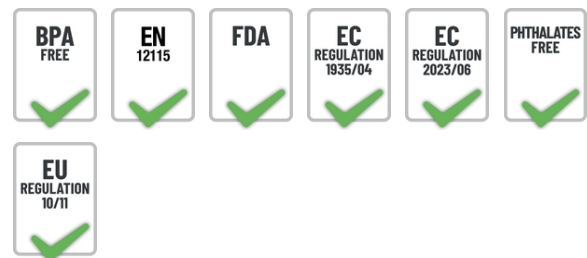
Specifications:

Bisphenol A free. EN 12115:2021. FDA tit. 21 it. 177.1520 for foods. Tube: Reg. EC 1935/2004. Tube: Reg. EC 2023/2006. Phthalates free (REACH Reg.). Reg. EU 10/2011 for alcoholic foods up to 95% vol.

Application:

hardwall smooth hose to convey a wide range of chemicals, food, petroleum products and oils. Hose suitable for use in an ATEX environment. Tested by the notified body INERIS.

It can be used in ATEX areas
 Suitable for a wide range of chemicals
 Complies with EN 12115



Tube:

black and white speckled, smooth, food quality PE-UHMW. Chemical resistance according to IVG chemical resistance chart. For temperature exceeding 50°C contact IVG.

Reinforcement:

high strength synthetic cord plus steel helix wire.

Cover:

black, smooth (wrapped finish), EPDM rubber, resistant to chemicals, abrasion, weathering and ozone.

Temperature:

-30°C(-22°F) +100°C(212°F) depending on medium.

Electrical resistance:

Ω/T, electrically conductive hose. Electrical resistance for lengths equal to or lower than 40 m.

Branding:

continuous blue/white stripe “IVG Chem THUNDERFLEX...”. Embossed according to EN 12115.



Thunderflex



Ex
zone



Code	Inside diameter		Outside diameter		Working pressure		Burst pressure		Weight nominal		Bending radius		Vacuum		Length max	
	mm	inch	mm	inch	bar	psi	bar	psi	kg/m	lbs/ft	mm	inch	bar	m	ft	
1466216	13	1/2	25	0,99	16	240	64	960	0,52	0,35	60	2,4	0,9	60	200	
1476823	16	5/8	28	1,10	16	240	64	960	0,6	0,40	75	3,0	0,9	60	200	
1463063	19	3/4	31	1,22	16	240	64	960	0,67	0,46	90	3,5	0,9	60	200	
1451847	25	1	38	1,50	16	240	64	960	0,91	0,61	120	4,7	0,9	60	200	
1456156	32	1-1/4	44	1,73	16	240	64	960	1,01	0,68	150	5,9	0,9	60	200	
1463071	38	1-1/2	51	2,01	16	240	64	960	1,31	0,89	180	7,1	0,9	60	200	
1465171	40	1-37/64	53	2,09	16	240	64	960	1,36	0,93	180	7,1	0,9	60	200	
1456148	51	2	65	2,56	16	240	64	960	1,77	1,19	250	9,9	0,9	60	200	
1464981	63,5	2-1/2	78	3,07	16	240	64	960	2,39	1,59	320	12,6	0,9	60	200	
1466232	76	3	91	3,59	16	240	64	960	2,9	1,93	400	15,8	0,9	60	200	
1476343	100	3-15/16	116	4,57	16	240	64	960	4,26	2,86	550	21,7	0,9	60	200	

Recommended Couplings:



Safety clamps EN 14420-3 (DIN 2817)



Clamp



Camlock

SPECIAL DETAILS

CIP and advice to users on hoses in contact with food

Sanitation

- IVG recommends for the first use a wash cycle with potable water at a maximum temperature of 80°C/90°C and a hose sanitation as reported above before conveying food products.
- At the end of each cycle the equipment and hose assemblies must be cleaned and disinfected.
- Strictly follow the times indicated for each cleaning cycle.
- Do not immerse hose assembly in the sanitation fluid because only the inner tube is suitable for contact with the below mentioned solvents.
- Every cleaning cycle must be immediately followed by a complete rinse.
- Do not exceed 3 bar working pressure in CIP systems.

HOSE*	Hot Water	Steam open end	H2O2 1%	H2O2 3%	Peracetic Acid 0.1%	Peracetic Acid 0.5%	Phosphoric Acid 5%	Chlorine 1%	NaOH 2%	NaOH 5%	Nitric Acid 0.1%	Nitric Acid 3%
FOOD SCOTLAND FOOD VINO FLEX FOOD CANA FOOD TUSCANY FOOD PIEDMONT FOOD CALIFORNIA TRUCK FOOD FLEX/IIIR	90°C 8 hours	Max 130°C 30 minutes	Max 70°C 15 minutes	Max 30°C 15 minutes	Max 50°C 15 minutes	Max 30°C 15 minutes	Max 80°C 15 minutes	Max 80°C 15 minutes	Max 80°C 15 minutes	Max 30°C 15 minutes	Max 70°C 15 minutes	Max 30°C 15 minutes
FOOD MILLENNIUM FOOD DIJON FOOD DAMASCO	80°C 8 hours	Max 110°C 15 minutes	Max 50°C 10 minutes	Max 30°C 10 minutes	Max 30°C 10 minutes	Max 30°C 10 minutes	Max 50°C 15 minutes	Max 70°C 15 minutes	Max 70°C 10 minutes	Max 30°C 10 minutes	Max 50°C 10 minutes	Max 30°C 10 minutes
TRUCK FOOD FLEX FOOD MERLOT FOOD PARRY	80°C 8 hours	Max 110°C 15 minutes	Max 50°C 10 minutes	Max 30°C 10 minutes	Max 30°C 10 minutes	Max 30°C 10 minutes	Max 50°C 15 minutes	Max 70°C 15 minutes	Max 70°C 10 minutes	Max 30°C 10 minutes	Max 50°C 10 minutes	Max 30°C 10 minutes
FOOD ALICANTE FOOD MILKSERVICE	90°C 8 hours	Max 130°C 30 minutes	Max 70°C 15 minutes	Max 30°C 15 minutes	Max 50°C 15 minutes	Max 30°C 15 minutes	Max 80°C 15 minutes	Max 80°C 15 minutes	Max 80°C 15 minutes	Max 30°C 15 minutes	Max 70°C 15 minutes	Max 30°C 15 minutes
FOOD PANAMA FOOD ACAPULCO FOOD OILMILL	80°C 8 hours	Max 110°C 10 minutes	Max 50°C 10 minutes	Max 30°C 10 minutes	Max 30°C 10 minutes	Max 30°C 10 minutes	Max 50°C 10 minutes	Max 70°C 10 minutes	Max 70°C 10 minutes	Max 30°C 10 minutes	Max 50°C 10 minutes	Max 30°C 10 minutes
FOOD ACQUABLU	80°C 8 hours	Max 110°C 30 minutes	Max 80°C 30 minutes	Max 50°C 30 minutes	Max 70°C 30 minutes	Max 50°C 30 minutes	Max 80°C 30 minutes	Max 80°C 30 minutes	Max 80°C 30 minutes	Max 50°C 30 minutes	Max 80°C 30 minutes	Max 50°C 30 minutes
FOOD SHETLAND CHEM THUNDER FLEX CHEM SUPERTOP UPE	90°C 12 hours	Max 130°C 30 minutes	Max 80°C 30 minutes	Max 50°C 30 minutes	Max 70°C 30 minutes	Max 50°C 30 minutes	Max 80°C 30 minutes	Max 80°C 30 minutes	Max 80°C 30 minutes	Max 50°C 30 minutes	Max 80°C 30 minutes	Max 50°C 30 minutes
TRUCK DON/BN TRUCK GORDON	80°C 8 hours	Max 110°C 15 minutes	Max 50°C 10 minutes	Max 30°C 10 minutes	Max 30°C 10 minutes	Max 30°C 10 minutes	Max 50°C 15 minutes	Max 70°C 15 minutes	Max 70°C 15 minutes	Max 30°C 10 minutes	Max 50°C 10 minutes	Max 30°C 10 minutes

*The indications regarding hoses on this list refer to the product code found in the IVG catalogue www.ivgspa.it.

General advice

- Hoses are not meant to permanently contain the products they convey.
- Store hoses away from direct sunlight and heat. When not in use store hoses with perforated plugs at both ends.
- Before every use check the hose condition. The hose cover, especially in the fitting area, should show no signs of cuts, tears, or bubbles. There should be no hard or weak areas, signs of detachment or collapse.
- Remember to guarantee traceability of every single piece of hose put into the market (Reg. EC 1935/2004, EC 2023/2006).

SPECIAL DETAILS

NOTES AND SUGGESTIONS FOR THE END USERS FOR HOSE ASSEMBLIES INTENDED TO BE USED IN ATEX ENVIRONMENTS 2014/34/UE

Below are the notes for the proper use of the product in ATEX environments and warnings resulting from the risk analysis for the verification of effective ignition sources **regarding the hose assembly**.

Suggestions for a correct Risk Analysis are also given. There is no presumption that these suggestions could be exhaustive of every possible ATEX environment scenario in which the hose assembly could be found, however the goal is to help the final user to carry out a correct Risk Analysis.

IVG Colbachini cannot, nor does it intend to, replace the Employer in his task of carrying out the Analysis. The aim is to help him in this activity.

The 1999/92/CE Directive (Minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres) obliges the Employer to:

1. evaluate the risks of explosion considering the following:

- likelihood and persistence of explosive atmospheres;
- likelihood that ignition sources will be present including electrostatic discharge;
- scale of possible effects;
- characteristics of the plant, substances used, processes and possible interactions;
- places that are or can be connected via openings with areas where explosive atmospheres are likely to generate.

2. To issue a document "**Explosion protection document**" (Risk Analysis).

3. To always update the "**Explosion protection document**" (Risk Analysis)

NOTE A – hot surfaces.

The hose does not contain heat sources, so the surface temperature of the hose depends strictly on the use by the end user. In the pneumatic conveying systems periodically check the integrity of the hose and its layers.

Do not use the hose if the inner layer is heavily worn. The range of the working temperature of the material for which we guarantee the properties is according to the technical data sheet of the product.

Damage resulting from improper use of the product are not attributable to the manufacturer.

NOTE B – sparks of mechanical origin.

The hose has no moving parts and it is not able to generate this source of ignition. In the pneumatic conveying systems, it is likely that sparks are carried from earlier process operations and not due to the hose itself. It is the end user's responsibility to operate so that this source of ignition is not present, internally and externally to the hose.

NOTE C – electrical equipment.

There are no electrical materials provided with the hose. The possible steel helix wire (if present between the layers of the hose) has been designed, to impart mechanical strength to the hose. The helix wire is not intended as an electrical conductor, but it can help the dispersion of electrostatic charges if and only if it is correctly connected to the ground line or to equipotential bonding jumpers with equipment already connected to the ground line.

NOTE D – eddy currents.

This ignition source is not applicable to the hose in question. The end user must operate so that the hose is not isolated from sections of insulating hoses. The hose, thanks to its conductive/dissipative characteristics is able to disperse possible electric/electrostatic charges accumulated during the process if and only if the hose is properly connected to the ground line.

NOTE E – electrostatic charges.

The hose does not contain or inherently generates electrostatic ignition sources. Eventual generation and accumulation of charges may depend on the material transported in the process and the ability of the material, properly connected with equipotential connections and/or connections with grounding, to be able to drain them. Care should be taken in the perfect cleaning and maintenance of connections and periodic assessment of the earth resistance that can detect anomalies in the system. The material the hose is made of has been designed to maximize the dispersion of electrostatic charges that can be generated due to the process. The nonapplication of these notes and improper use of the product as designed, absolve the manufacturer from any responsibility for any damage that may result. According to the characteristics and needs of the process that may generate internal and external hazardous atmospheres, detailed studies should be performed by experienced staff to guarantee a proper use of the product.

The concepts, recommendations, references and the limits reported in the following standards are extremely important in order to carry out a detailed study:

- CEI CLC/TR 60079-32-1:2016 – Electrostatics – Code of practice for the avoidance of hazards due to static electricity.
- NFPA 77 - 2014 - Recommended Practice on Static Electricity.
- UNI CEI EN ISO 80079-36:2016 – Explosive atmospheres - Part 36: Non-electrical equipment intended for explosive atmospheres - Basic method and requirements.
- UNI CEI EN ISO 80079-37:2016 – Explosive atmospheres - Part 37: Non-electrical equipment intended for explosive atmospheres - Type of non-electrical protection for constructive safety "c", for ignition source control "b", by immersion in liquid "k".
- UNI EN 1127-1/2011 Explosive atmospheres. Explosion prevention and protection – Part 1: Basic concepts and methodology.

NOTE F – adiabatic compression and shockwaves.

It is not applicable to the supplied hose. The possible releases of gas at high speed can only be caused by the process. The user must assess the possible presence of this ignition source before putting the hose into use.

SPECIAL DETAILS

NOTE G - temperature increases due to chemical reactions or unstable materials.

Chemical incompatibility of the materials of the hose with the product/s to be conveyed. Verify in the design phase and before use, the chemical compatibility of the substances used in the process with the material of the hose. For any questions or doubts, please contact IVG Colbachini for the necessary compatibility checks.

NOTE H - combustion of a layer of powder or other combustible material: presence of dust between moving parts.

The ignition source is not inherently present in the product supplied. Correct transport speeds could prevent accumulations of the dust. Periodic cleaning prevents dust accumulations that, besides modifying and make less effective the dissipative characteristics of the material, could promote this kind of ignition.

The use of the product / hose as pneumatic conveying equipment brings the transport of embers generated in the connected process equipment.

SUGGESTION 1 - Fluid loss.

We suggest considering as a possible foreseeable effect the possibility of a fluid loss of the system while in use. Therefore, all necessary precautions must be taken to contain/eliminate the possible negative consequences, in order to safeguard those workers exposed to possible explosive atmospheres.

A correct maintenance of the plants/installation helps minimizing the above mentioned risk.

SUGGESTION 2 - Flames and hot gas.

We suggest checking that there are no flames or hot gas in the potentially explosive zones, in particular assessing the risk that can accidentally arises from places that are or can be connected through openings to places where explosive atmospheres may occur.

SUGGESTION 3 - Lightning strike.

We suggest making sure that there is an adequate protection against the possible ignition of explosive atmosphere caused by the ground discharge of a lightning strike. We also suggest that the proper function of this protection is periodically checked. Furthermore, we suggest evaluating the possibility of ignition of explosive atmosphere caused by very high temperatures of the lightning-conductors.

SUGGESTION 4 - Radiofrequency electromagnetic waves (RF) from 104 Hz to 3x10¹² Hz.

We suggest checking the presence of systems that generate and use radio frequency electrical energies, such as RF generator for medical use or industrial use for heating, drying or hardening, which produce electromagnetic waves. If the electromagnetic field amounts an important value and the antenna is big enough, these conductors can ignite the explosive atmosphere.

SUGGESTION 5 - Electromagnetic waves from 3x10¹¹ Hz to 3x10¹⁵ Hz.

We suggest checking the presence of electromagnetic radiation in this range because it can become an ignition source as an effect of the absorption of explosive atmospheres or solid surfaces.

Sunlight can, for example, ignite an explosion through objects causing the convergence of sunlight (i.e. reflecting surfaces etc.).

SUGGESTION 6 - Ionizing radiation.

We suggest checking the presence of ionizing radiation, which can be generated from X-ray tube or radioactive substances since they can ignite an explosive atmosphere, especially in the presence of dust particles.

SUGGESTION 7 – Ultrasound.

We suggest checking the presence of ultrasonic waves as they may, in extreme cases, cause the ignition of a liquid or solid substance.

SPECIAL DETAILS

SAFETY INSTRUCTIONS FOR HOSES INTENDED FOR CHEMICAL APPLICATIONS

INTRODUCTION

The chemical resistance of a hose is closely related to the medium conveyed and to the conditions of use. In particular, remember to check the chemical resistance of the elastomer that constitutes the inner tube in the table found on the IVG website (<https://www.ivgspa.it/en/chemical-resistance.aspx>).

The useful life of the product is seriously influenced by the conditions of use such as temperature and pressure, as well as delivery speed, abrasion, frequency, and duration of use. The age of the hose and the degree of impurities of the transported chemical product are also determining factors.

USE

Particular care must be taken to ensure that the cover and ends of the hose don't come into contact with the chemicals and/or elements that may damage the integrity of the hose.

All operators involved in the use and maintenance of the hose and its fittings must be adequately trained on the proper use of chemicals. They must also wear appropriate protective clothing and devices.

A system failure could cause the release of toxic, corrosive and/or flammable material.

If you use chemical products or mixtures that differ from what is listed in the IVG chemical resistance chart please contact IVG before use. You are also advised to contact IVG if the nature or composition of the product to be conveyed, for example concentration or temperature, do not correspond to indications given by IVG. www.ivgspa.it/resistenze-chimiche.aspx

FITTINGS

We recommend using fittings in materials suitable for the conveyed product. Pay particular attention to the combination between different materials if their contact can produce galvanic corrosion (e.g. aluminum - brass). Any small variation in concentration or temperature of the conveyed product can determine an important reduction of the mechanical characteristics of the metallic fitting. In case of doubts about the choice of the appropriate fitting please contact IVG Colbachini (<https://www.ivgspa.it/en/contacts.aspx>).

INSPECTION AND MAINTENANCE

Even if the use of the product complies with all the prescriptions reported in this document and in the attached sheets, all the materials used for the hose production suffer a natural aging with subsequent loss of the chemical-physical-mechanical characteristics. Hoses and fittings must be carefully inspected preferably before each use and in any case with a periodic frequency not exceeding 6-12 months. This will help prevent possible leakage of polluting substances, dangerous for the health of man and the environment.

It is important during these periodic checks to pay attention to the state of the hose and fittings. Any anomalies that are detected indicate a degraded state of the hose and determine its removal from service.

Main anomalies detectable on hoses:

- cracks, cuts, abrasions, detachments, tears of the cover with damaged or uncovered areas of reinforcement
- deformations, bubbles, specific swelling under pressure
- sticky or soft areas
- leaks

Main anomalies detectable on fittings:

- cracks or signs of corrosion on the metal parts
- worn gaskets
- sliding of the fitting on the hose
- leaks

Avoid stagnation of products in the hose, especially in the case of solutions or emulsions. The resulting decanting causes concentrations to exceed the allowed limits. To avoid this phenomenon, proceed with emptying and cleaning after each use where possible.

SPECIAL DETAILS

SAFETY INFORMATION – USER RESPONSIBILITIES

The service life of rubber hoses mainly depends on the dedicated use. Equipment and systems where the hose is installed must be designed safely. Since our hose can be designed for different applications, **IVG Colbachini** cannot guarantee the proper functioning of the product for all situations.

The analysis of the technical aspects related to specific uses must be performed by the users when choosing the product that meets their requirements. So, in relation to the variety of operating conditions and applications of the IVG hose, the user is solely responsible for the final choice of the product deemed suitable to satisfy the performance and safety requirements called for the application.

The information and technical data shown in the product data sheets must be examined by users with appropriate technical skills. IVG Colbachini is not responsible for other uses, identified by the end user, that are different from the one shown in its catalogues, product sheets, offers, order confirmations and any recommendations attached.

An inappropriate choice of the product or a failure to follow the procedures of installation, use, maintenance and storage of the hoses may lead to a hose break and cause material damage and/or serious injury to people.

For the selection and proper use of the IVG products you can also refer to the document "Recommendations for selection, storage, use and maintenance of rubber hoses" provided by Assogomma and available on www.ivgspa.it. These recommendations are according to the international standard ISO 8331, "Plastic and rubber hoses and hose assemblies - Guidelines for selection, storage, use and maintenance."

For safety reasons, never exceed the working pressure indicated in the product data sheet.

For specific applications of rubber hoses, please refer to the legal requirements or specific standards; moreover, additional recommendations for particularly critical applications are available.

For further information, contact the Marketing department (marketing@ivgspa.it).