
Interesting facts about hoses

General

Hoses of SCHAUBURG Ruhrkunststoff GmbH are designed for the conveying of dry, gaseous and liquid media. The user is obliged to use our products only on the basis of our stated specifications. All our technical data are the result of internal tests and trials in accordance with international standards. They only serve as a guide and refer to a fluid and ambient temperature of +23°C, static pressure and vacuum loads and straight hose lines with a length according to the corresponding test standard. The specified values do not apply with deviating temperatures, pulsating pressure, vacuum load, vibration of the hose pipe or the connection sides, heavily curved hoses or improperly attached hoses. In these cases, the suitability for use must be verified by the user. If there is no experience in using our products, we strongly recommend prior testing or consultation with our technicians. This

is especially important at operating conditions with mutual loads (movements), high temperatures, vibration, abrasion, water vapor, chemical loads or S-shaped hose linings. The application examples provided by us are not binding. To achieve a long service life, the following should be noted for selection and use. Choice of products according to the maximum operating pressure given in the catalogue. The hose should never be deformed by force (e.g. kinking, crushing, running over with vehicles, twisting, etc.). Dragging hose pipe over rough floors and sharp edges needs to be avoided. The hose should not be permanently bent at the couplings or subjected to excessive tensile stress. Contact of unprotected hose ends with the flow media should be avoided. Emptying and careful cleaning may significantly extend the life of a hose pipe.

Storage of Thermoplastic Hoses

The storage area must be cool, ventilated and sufficiently dry. High ambient temperatures above +45° C without any airflow can permanently deform thermoplastic hoses. Please note that such temperatures may arise in direct sunlight, even when hoses are packaged. The permanent stack height must be adapted to the respective product and ambient temperature. Hose coils/lengths, which are loaded with a higher weight under summer tempera-

tures, may be deformed. It is important to ensure that the hoses are stored free of tension, so without strain, pressure or other stresses, since tension encourages both permanent deformation and cracking. For outdoor storage, thermoplastic hoses must not be exposed to direct sunlight. The packaging must not be airtight. Depending on the product, thermoplastic hoses must be protected from permanent UV and ozone radiation.

Transport of Thermoplastic Hoses

Because of the constant movement, transport leads to much greater mechanical stress for thermoplastic hoses than those which arise during storage. High outdoor temperatures, the heat accumulation in the truck/container and constant vibrations during the journey can quickly lead to permanent deformation of the hoses. Therefore, at high temperatures, the stack height during

transport must be less than it is during storage. During transport, thermoplastic hoses may not be thrown, dragged along the floor, run over or stepped on. This could result in damage to the outer layer and deformation of the spiral reinforcement. We assume no liability for this. Therefore, care must be taken to ensure that no damage is caused by improper handling.

Temperature Behavior of Thermoplastic Hoses

Unlike rubber hoses, the cold and heat have a great influence on thermoplastic hoses. Plastic hoses change their flexibility at low or high temperatures of the media or the environment. At lower temperatures, they can harden until they become brittle. At higher temperatures they can become malleable. Because of these prop-

erties, the pressure and vacuum specifications for thermoplastic tubes are exclusively linked to a temperature of the media and the environment of around +23°C. If temperatures deviate from the media or environment, we cannot guarantee compliance with the indicated technical characteristics.

Influence of Sunlight on Thermoplastic Hoses

The UV radiation from the sun can attack the material and destroy the hose over time. This happens in connection with the duration and intensity of solar radiation, which is usually lower in the Northern regions than in Southern regions. Therefore, a precise time period cannot be given. The embrittlement of thermoplastic hoses by UV radiation can be slowed down, but not completely stopped,

by adding special UV stabilizers. These stabilizers also wear with continuous UV irradiation. Some of our hose types are fitted with these UV stabilizers as a standard to ensure a long shelf life under direct sunlight. On request, any type of hose can be fitted under certain conditions with UV stabilizers.

Pressure and Vacuum Behavior of Hoses

Genuine pressure hoses are all types which have a yarn reinforcement as a pressure carrier. All hoses can change their length and diameter and become twisted even within the specified pressure and vacuum values. For hoses with yarn reinforcement as a pressure carrier, changes of up to 5% in length and girth is normal, even under laboratory conditions. Therefore, all operating conditions which deviate from the norm influence the behavior of these products even more. All hoses which have a spiral reinforcement without any polyester yarn reinforcement are only suitable as pressure hoses to a very limited extent, and are mainly intended for vacuum applications. By design, a change in length of these hose type of up to 30 % during use, even within the specified pressure and vacuum value, is always possible. All possible length and girth changes, as well as axial twisting of hoses must be considered by the user during use. In use conditions, hoses must not be fixed at short distances as pipes are, but must be able to move freely at all times. In soil, hoses may only be laid in adequately dimensioned

conduits. In doing so, all possible changes in the hose geometry need also to be taken into account at all times. We strongly recommend that you determine the hose behavior in use by means of prior testing and then carry out the installation. With spiral reinforced hoses, the elongation and twisting in the case of overpressure leads to a reduction of the inner diameter at the same time. For hoses with steel spiral reinforcement, the spiral cannot completely follow this reduction of the inner diameter. Thus, the spiral can work through the hose wall to the outside and destroy the hose. With permanent use in the overpressure range, we generally recommend hoses with yarn reinforcement as the actual pressure carrier. This prevents excessive elongation.

Based on DIN EN ISO 1402-7.3, the values given for the burst pressure with compressed air and pneumatic hoses were determined at about 23° C and water as a pressure medium.

Using Hose Couplings

In suction applications, plastic spiral hoses can be integrated with a variety of commercially available fittings. In the application, the hose sucks firmly onto the fitting and seals itself off. In pressure applications, spiral hoses are much more complex and are to be permanently sealed due to the strain and change in diameter. Our fittings, which are customized to the particular type of hose, are ideally suited to this. When using standard fittings, please ask for our respective procedures recommendations. With PVC yarn reinforced and monoextruded hoses, make sure that the material has a significantly lower notch toughness compared to rubber. There-

fore, fittings may not have any sharp edges that can rip when assembling the inner layer. If the thermoplastic yarn reinforced hoses are fixed to a hose connector by means of press sleeves or hose clamps, make sure that the pressure is applied with the least possible force. Otherwise, the hose layers can be cut through the fitting or the hose clamp, whereby the hose becomes immediately unusable. For safety reasons, we recommend hose connectors with lower gearing than the thickness of the hose inner layer. Basically, it should be ensured that, when using fittings, all kinds of hoses are not bent sharply right behind the fitting.

REACH and RoHS Compliance

The SCHAUBURG Ruhrkunststoff GmbH as being a converter of raw materials made by third parties closely monitor and request

their suppliers to comply with and update on any eventual changes under REACH and ROHS Regulations.

Discharge Capability of Hoses

To derive electrostatic charges in the transport of powdery or granular media, all plastic hoses can be used with copper wire or steel spirals. Through the grounding at both ends of the braid or spiral, these hoses are considered to be conductive. For use in potentially

explosive areas, the TRBS 2153 must be followed. The usefulness of hoses and compliance with all mentioned in the TRBS 2153 rules are in each case, to consider by the user and to ensure.

Food Grade Quality of Hoses

By definition, plastic hoses belong to the commodities that may be intended for contact with food. The European Regulation EU 10/2011 makes a difference in Appendix 3 on page 75 between the 6 different categories A, B, C, D1, D2 and E, according to which a foodstuff commodity (hose) can be tested. The test for a particular category is carried out using a simulant, and must be run on the finished component (hose). The continued common practice of many manufacturers to merely confirm that the hose basis suitable for foodstuffs is not permitted. In the Regulation, all food is mostly assigned to a

single simulant (category). The food categories for which our products are approved are designated by printing on the hose. We publish specific information on the contact time and possible exclusions in our Declarations of Conformity, which are available at all times. When choosing one of our products, it is the responsibility of the user or the customer to check that it is approved for the intended food and the contact time. Regulation 10/2011 can be viewed on the internet at eur-lex.europa.eu/LexUriServ/LexUriServ.do at any time. Of course, we are also happy to advise you.

ATEX Guideline

For the ATEX guideline it is not necessary if the hose is electrically conductive or dissipative, it has to meet the requirements of the TRGS 727. ATEX approval can only be made for equipment (machines) or components, but spiral hoses are no „equipment“ nor „components“ in terms of the ATEX directive 2014/34/EU. To be an equipment or

component concerning the ATEX directive the equipment or components must have an „autonomic function“ like a motor. As hoses do not have an „autonomic function“ ATEX approval is not possible. However, if the hose meets the specifications according to TRGS 727 it is suitable for the use at e.g. a machine which is ATEX certified.

Fire Resistance Compliance

Hoses indicated as Fire resistant, follow the tests and classifications of the materials used in the production of those hoses. As there are several norms available regarding fire resistance, performance and

testing, users should be aware that a compliance under one norm does not ensure similar compliance under a different norm. Please feel free to contact us when you are in doubt.

Dimensions

With hoses, reference is generally made to the inner diameter with the exception of some drinking water and garden hoses. Where appropriate, we also indicate the wall thickness for the sake of

completeness, however the wall thickness will not necessarily define the outer diameter as this is influenced also by the hose structure.

Weight

Weight references in the data sheet are for indication purposes only and they are not contractual. We reserve the right to modify the weights according to our production conditions, as long as the

product maintains its original performance in terms of vacuum resistance, working and bursting pressure, bending radius or other performance information mentioned on the product pages.

Burst Pressure

The burst pressure is the pressure under which a hose will become destroyed due to the pressure. The test is always run in line with the international standard DIN EN ISO 1402 or DIN 26057 ac-

ording to the hose type. The burst pressure is used to define the operating pressure taking account of the general safety factors.

Operating Pressure

The operating pressure is always determined in line with the international standard according to the application and the type of hose used:

- DIN EN ISO 7233 for PVC suction and delivery hoses, and yarn reinforced hoses

- DIN 26057 for spiral hoses made with thermoplastic polyurethane with steel wire reinforcement
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Test Pressure

Pressure that is maintained during non-destructive testing and for a specified duration in order to verify the integrity of the hose assembly. Depending on the hose construction, the test pressure is up to 50%

above the operating pressure. At test pressure, the hose must not show any leakage or permanent deformation.

Vacuum

Vacuum is the negative pressure that a hose can withstand without resulting in flattening or detachment of the lining or layer separation. The determination is always based on the international standard according to the application and the type of hose used:

- DIN EN ISO 7233 for PVC suction and delivery hoses, and yarn reinforced hoses
- DIN 26057 for spiral hoses made with thermoplastic polyurethane with steel wire reinforcement

Bending Radius

smallest drum around which the hose can be laid without the cross-section becoming significantly changed compared to the original shape. In each case, the test is performed in accordance with the standard which determines the product.

Customized Types

Almost all types of hoses can be optimized to customer requirements for the particular application. Wall thicknesses, dimensions, pressure or vacuum support, colors, lengths and shapes can be already be customized for you. We are happy to answer your questions at any time and assist you in finding the suitable hose for your application.

Phatalate-free

All our hoses are free of ortho-phthalates.

If you have any further questions, please do not hesitate to contact us.