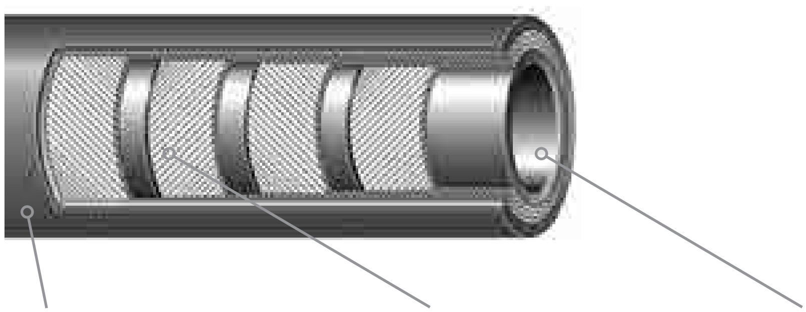
Air & Multipurpose
General Purpose
Heavy Duty
Push-on
Chemical Transfer
Cleaning Equipment
Food
Transfer
Washdown
Marine
Material Handling
Abrasives
Bulk Transfer
Cement & Concrete
Mining
Petroleum
Aircraft Fueling
Dispensing
Dock
Transfer
Spray
Steam
Vacuum
LPG Delivery
Water
Discharge
Suction & Discharge
Washdown
Welding
Coupling Systems
Equipment
Appendix

General Information

Basic Hose Construction



Cover The cover is the outermost or visible area of the hose. It is designed to be a protective covering against wear, abrasion, cuts, weather, and the general destructive action encountered in normal service.

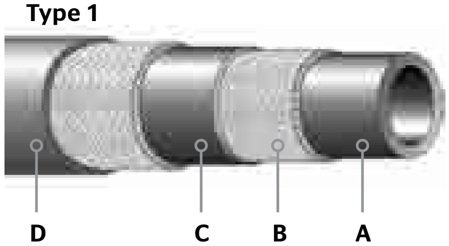
Body or Carcass The body reinforcement is the supporting structure of the hose. It can range from simple to complex combinations and consists of cord, yarn, fabric, wire, or any combination of these.

Tube Or Lining The tube is the inner-most element of a hose and is compounded to provide resistance to the material being carried. With the wide range of rubber compounds available, a hose can be built to withstand abrasive materials, chemicals, oil and a wide variety of other materials.

The Four Basic Methods Of Hose Construction

Although we make more than 2,000 types of hose for specialized applications, there are only four basic construction methods used. Since each of these four methods embodies certain fundamental characteristics that make it particularly suitable for certain functions, an understanding of these methods may assist you in making the best use of this catalog. Keep in mind that a reference to any one of these types of construction will imply all the characteristics and benefits outlined here plus specific features attained through the proper compounding of rubber, choice materials, and variation in plies and thickness to ensure that each hose is exactly right for the job for which it is designed.

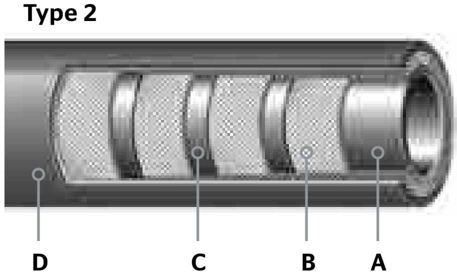
Type 1



Type 1: Vertical Braided Hose
Entire hose length cured in one operation.

A. Extruded seamless tube.
B. Seamless reinforcing braids of synthetic textile wire or other material – applied by high speed vertical or horizontal braiders.
C. Rubber layers between braids establish positive bond between braids when vulcanized.
D. Extruded, seamless cover.

Type 2



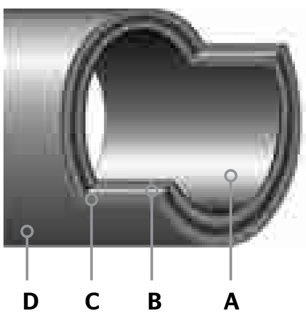
Type 2: Spiral Hose
Built by machine with either textile or wire cord reinforcement applied so that each ply is laid at a given angle for maximum dimensional stability.

A. Extruded or calendered tube.
B. Reinforcement of synthetic textile wire or other material.
C. Rubber layers between reinforcement plies to establish positive bond.
D. Cover.

General Information

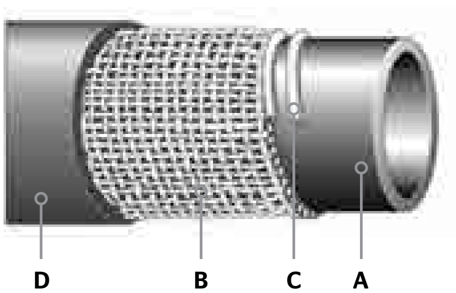
The Four Basic Methods of Hose Construction (continued)

Type 3



Type 3: Hand-built Spiral-plied Hose
Built by hand on a mandrel. Cured under pressure applied from outside by cloth wraps and steam.
A. Calendered, or "built-up" tube to fit service.
B. Tailor-made spiral-wrapped fabric.
C. Wire reinforcement where needed.
D. Cover stock of selected gauge and compound. Wrap cured.

Type 4



Type 4: Knitted Hose
A. Extruded seamless tube.
B. Seamless woven textile jacket.
C. Interwoven wire helix reinforcement where needed.
D. Extruded seamless cover.

Advantages

TYPE 1 Braided Hose
Flexible, high resistance to kinking. Cover either smooth or wrapped. Available in long continuous lengths. Excellent tensile strength.

TYPE 2 Spiral Hose
Extremely flexible. Smooth bore, uniform tube. High strength with long length capability.

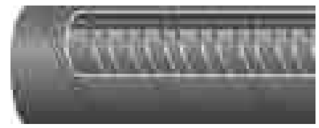
TYPE 3 Hand-built Spiral-plied Hose
Craftsman-built to special requirements. Wide variation in sizes, constructions and materials. Built-in strength to fit most rugged job requirements. Couplings, fittings, nipples, flanges and beaded ends can be built in. Available in lengths up to 50 feet, in sizes up to 18 inches. On larger diameters, consult your Continental ContiTech representative.

General Information

Definitions of Hose Ends

Plain End

All hose construction elements (including wire, if wire is used as a reinforcing member) are exposed. The hose always has the same inside diameter throughout.



In the case of certain hand-built specifications having wire reinforcement, the wire and fabric reinforcement are not exposed.All vertical spiral hose is available only with plain ends.

Horizontal spiral and wrapped ply machine-built hose is furnished with plain ends unless otherwise specified in the pricebook.

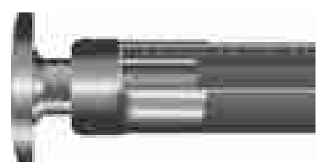
Built-In Nipple End

The hose end is integrally built around and bonded to the nipple body. The hose reinforcing materials are also anchored to the nipple.The nipples used are generally fabricated from pipe. Nipples made from standard pipe will be full bore only when pipe 12" and under is used since nominal pipe sizes over 12" are described by pipe OD and not ID.

Available only in hand-built hose constructions.

Swaged End

Primarily used on petroleum OS&D dock hose as an alternative to built-in nipples. The steel (carbon or stainless) stem/coupling accommodates threaded, slip-on or welded flanged ends. Stem/coupling attached to hose with swaged steel ferrule over the cover.



Enlarged End

The hose end is enlarged to accommodate the outside diameter of the shank of a fitting plus the depth of the shank. The helical wire is terminated at the enlarged end.

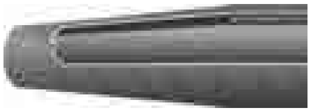
The inside diameter of a “standard” enlarged end is the same dimension as the outside diameter of the same nominal pipe size. (Example–6" ID hose enlarged to 6 5/8" at the end, handles a 6” size pipe which has a 6 5/8" OD.) Normally used in hand-built hose constructions.

General Information

Definitions of Hose Ends

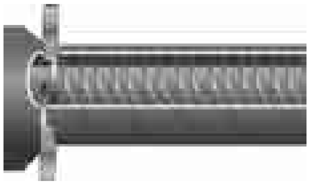
Integral Rubber Tapered Nozzle End

The inside diameter and the outside diameter of the hose end are gradually tapered down to form a nozzle. The hose reinforcement is also extended to the end of the nozzle. A rubber end cap is then added to protect the reinforcement and properly shape the nozzle.This type of nozzle is available only in non-wire inserted horizontal spiral and wrapped ply machine-built hose.



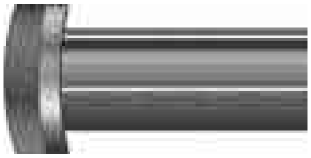
Rubber Beaded End

A flared bell shape, molded as an integral part of the hose. The reinforcing fabric of the hose body is extended beyond the straight portion of the hose and anchored around a circular steel reinforcing ring. A reattachable split malleable iron flange is placed behind the rubber bead to act as a metal bearing surface for bolt heads and nuts. Bolts used to connect mating flanges pass over the outside diameter of the zzbeaded end.Normally used in hand-built hose constructions.



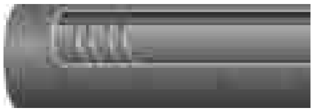
Integral Rubber Flanged End

Shaped similar to a metal pipe flange. It is molded as an integral part of the hose with the tube, fabric reinforcement (not wire) and cover extending to the outside diameter of the rubber flange. The rubber flange has holes to match customer requirements. In addition, solid metal "backup" rings (drilled to match the rubber flange holes) are always placed behind the rubber flange to provide a metal bearing surface for bolt heads and nuts. Available only in hand-built hose constructions.



Soft End

The helical wire reinforcement is terminated several inches back from the end of the hose. When a hose has either a corrugated cover or tube or both, a soft end is generally used and always has a smooth inside diameter and outside diameter. Normally used in hand-built hose constructions.



Air & Multipurpose
General Purpose
Heavy Duty
Push-on

Chemical Transfer

Cleaning Equipment

Food
Transfer
Washdown

Marine

Material Handling
Abrasives
Bulk Transfer
Cement & Concrete

Mining

Petroleum
Aircraft Fueling
Dispensing
Dock
Transfer

Spray

Steam

Vacuum

LPG Delivery

Water
Discharge
Suction & Discharge
Washdown

Welding

Coupling Systems

Equipment

Appendix

General Information

Hose Testing Methods

Reprinted from RMA hose handbook IP-2 2003

Safety Warning

Testing can be dangerous and should be done only by trained personnel using proper tools and procedures. Failure to follow such procedures might result in damage to property and/or serious bodily injury.

The Rubber Manufacturers Association (RMA) recognizes, accepts and recommends the testing methods of the American Society for Testing and Materials (ASTM).

Unless otherwise specified, all hose tests are to be conducted in accordance with ASTM Method No. D-380 (latest revision). Where an ASTM D-380 test is not available, another test method should be selected and described in detail.

RMA participates with ASTM under the auspices of the American National Standards Institute (ANSI) in Technical Committee 45 (TC45) of The International Organization for Standardization (ISO) in developing both hose product and hose test method standards. Many of the hose test method standards published by ISO duplicate or closely parallel those shown in ASTM D-380. Many are unique and, in those cases, the RMA may be able to provide the necessary test standard references which may be purchased from the ANSI.

Hydrostatic Pressure Tests

Hydrostatic pressure tests are classified as follows:

1. Destructive Type

a. Burst test
b. Hold test

Destructive Tests

Destructive tests are conducted on short specimens of hose, normally 18 inches (460mm) to 36 inches (915mm) in length and, as the name implies, the hose is destroyed in the performance of the test.

a. Burst pressure is recorded as the pressure at which actual rupture of a hose occurs.

b. A hold test, when required, is a means of determining whether weakness will develop under a given pressure for a specified period of time.

2. Non-Destructive Type

a. Proof pressure test
b. Change in length test (elongation or contraction)
c. Change in outside diameter or circumference test
d. Warp test
e. Rise test
f. Twist test
g. Kink test
h. Volumetric expansion test

Non-Destructive Tests

Non-destructive tests are conducted on a full length of a hose or hose assembly. These tests are for the purpose of eliminating hose with defects which cannot be seen by visual examination or in order to determine certain characteristics of the hose while it is under internal pressure.

a. **A proof pressure test** is normally applied to hose for a specified period of time. On new hose, the proof pressure is usually 50% of the minimum specified burst except for woven jacket fire hose where the proof pressure is twice the service test pressure marked on the hose (67% of specified minimum burst). Hydrostatic tests performed on fire hose in service should be no higher than the service test pressure referred to above. The regulation of these pressures is extremely important so that no deteriorating stresses will be applied, thus weakening a normal hose.

b. With some type of hose, it is useful to know how a hose will act under pressure. All change in length tests, except when performed on wire braid or wire spiralled hose, are made with original length measurements taken under a pressure of 10 psi (0.069 MPa). The specified pressure, which is normally the proof pressure, is applied and immediate measurement of the characteristics desired are taken and recorded.

General Information

Hose Testing Methods
Hydrostatic Pressure Tests (continued)

Percent length change (elongation or contraction) is the difference between the length at 10 psi (0.069 MPa) (except wire braided or wire spiralled) and that at the proof pressure times 100 divided by the length at 10 psi (0.069 MPa). Elongation occurs if the length of the hose under the proof pressure is greater than at a pressure of 10 psi (0.069 MPa). Contraction occurs if the length at the proof pressure is less than at 10 psi (0.069 MPa). In testing wire braided or spiralled hose, the proof pressure is applied and the length recorded. The pressure is then released and, at the end of 30 seconds, the length is measured; the measurement obtained is termed the "original length."

c. **Percent change in outside diameter or circumference** is the difference between the outside diameter or circumference at 10 psi (0.069 MPa) and that obtained under the proof pressure times 100 divided by the outside diameter or circumference at 10 psi (0.069 MPa). Expansion occurs if the measurement at the proof pressure is greater than at 10 psi (0.069 MPa).Contraction occurs if the measurement at the proof pressure is less than at 10 psi (0.069 MPa).

d. **Warp** is the deviation from a straight line drawn from fitting to fitting; the maximum deviation from this line is warp. First, a measurement is taken at 10 psi (0.069 MPa) and then again at the proof pressure. The difference between the two, in inches, is the warp. Normally this is a feature measured on woven jacket fire hose only.

e. **Rise** is a measure of the height a hose rises from the surface of the test table while under pressure. The difference between the rise at 10 psi (0.069 MPa) and at the proof pressure is reported to the nearest 0.25 inch (6.4 mm). Normally, this is a feature measured on woven jacket fire hose only.

f. **Twist** is a rotation of the free end of the hose while under pressure. A first reading is taken at 10 psi (0.069 MPa) and a second reading at proof pressure. The difference, in degrees, between the 10 psi (0.069 MPa) base and that at the proof pressure is the twist. Twist is reported as right twist (to tighten couplings) or left twist. Standing at the pressure inlet and looking toward the free end of a hose, a clockwise turning is right twist and counterclockwise is left twist.

g. **Kink test** is a measure of the ability of woven jacket hose to withstand a momentary pressure while the hose is bent back sharply on itself at a point approximately 18 inches (457 mm) from one end. Test is made at pressures ranging from 62% of the proof pressure on sizes 3 inches (76 mm) and 3.5 inches (89 mm) to 87% on sizes under 3 inches (76 mm). This is a test applied to woven jacket fire hose only.

h. **Volumetric expansion test** is applicable only to specific types of hose, such as hydraulic or power steering hose, and is a measure of its volumetric expansion under ranges of internal pressure.

Design Considerations

In designing hose, it is customary to develop a design ratio, which is a ratio between the minimum burst and the maximum working pressure.

Burst test data is compiled and the minimum value is established by accepted statistical techniques. This is done as a check on theoretical calculations, based on the strength of reinforcing materials and on the characteristics of the method of fabrication.

Minimum burst values are used as one factor in the establishment of a reasonable and safe maximum working pressure.

Maximum working pressure is one of the essential operating characteristics that a hose user must know and respect to assure satisfactory service and optimum life.

It should be noted that design ratios are dependent on more than the minimum burst. The hose technologist must anticipate natural decay in strength of reinforcing materials, and the accelerated decay induced by the anticipated environments in which the hose will be used and the dynamic situations that a hose might likely encounter in service.
Including all considerations, the following recommended design ratios are given for newly manufactured hose:

1. Water hose up to 150 psi WP: 3:1
2. Hose for all other liquids, solid materials suspended in liquids or air, and water hose over 150 psi WP: 4:1
3. Hose for compressed air and other gases: 4:1
4. Hose for liquid media that immediately changes into gas under standard atmospheric conditions: 5:1
5. Steam hose: 10:1

General Information

Electrical Resistance Tests for Hose and Hose Assemblies

1.0 Purpose

This procedure specifies methods for performing electrical resistance tests on rubber and/or plastic hose and hose assemblies.

2.0 Scope

These procedures are intended to test electrical conductive, antistatic and nonconductive (insulating) hoses, along with electrical continuity or discontinuity between fittings.

Warning

Hydraulic hoses used on power and telephone mobile equipment should be tested to SAE 100R8 requirements.

3.0 Definitions

3.1 Antistatic Hose - Antistatic hose constructions are those that are capable of dissipating the static electricity buildup that occurs during the high velocity flow of material through a hose.
3.2 Conductive Hose – Conductive hose constructions are those that are capable of conducting an electrical current.
3.3 Direct Current (DC): Flow of electrical current in one direction at a constant rate.
3.4 Electrical Conductivity: A measure of the ease with which a material is capable of conducting an electrical current. Conductivity = 1/Resistance.
3.5 Electrical Resistance: Property of an object to resist or oppose the flow of an electrical current.
3.6 Non-Conductive (Insulating) Hose: Non-conductive hose constructions are those that resist the flow of electrical current.
3.7 Ohm's Law: The electrical current, I, is equal to the applied voltage, V, divided by the resistance, R. In practical terms, the higher the electrical resistance at a constant voltage, the lower the electrical current flow through an object.
3.8 Ohm: The amount of resistance that limits the passage of current to one ampere when a voltage of one volt is applied to it.

4.0 Apparatus

4.1 Test Instruments: All test instruments shall have a gauge reliability and reproducibility (R&R) of less than 30%. Some instruments made to measure high electrical resistance may have an internal protection circuit built in which will cause test
errors in the less than one megohm range.
During the test, no more than 3 watts (W) shall be dissipated in the specimen, to prevent erroneous results due to effects of temperature. The power dissipated shall be determined by the square of the open-circuit voltage divided by the measured resistance, see formula 1 (Power Dissipation).

1) $$\text{Power Dissipation} = \frac{(\text{Voltage})2}{\text{Resistance in ohms}}$$

To determine the electrical resistance of non-conductive hose, the test should be made with an instrument designed specifically for measuring insulation resistance, having a nominal open-circuit voltage of 500 volts D.C., or with any other instrument known to give comparable results. For measuring electrical discontinuity, a 1,000 volt D.C. source may be used instead of a 500 volt D.C. source.
For hoses with a conductive tube or cover, the resistance values obtained may vary with the applied voltage, and errors may occur at low-test voltages. As a starting point, an ohmmeter (9 volts) can be used. For tests requiring measurement of electrical continuity between end fittings or through continuous internal or external bonded wires, the instrument used shall be an ohmmeter (9 volts).
4.2 Electrodes and Contacts: When the test procedure calls for contact with the hose cover, electrodes shall be formed around the outer circumference of the hose as bands 25mm +2mm, 0 mm (1" +1/16", 0") wide by applying silver lacquer/conductive liquid and metallic copper foil tape (i.e. 3M Scotch Brand) as shown in Figure 6-1. When a conductive silver

General Information

Electrical Resistance Tests for Hose and Hose Assemblies (continued)

lacquer (i.e. Colloidal Silver Liquid is available from Ted Pella, Inc. catalogue # 16031) is used, the surface resistance between any two points on a sample of the dried film shall not exceed 100 Ω. When a conductive liquid is used the electrode contact area shall be completely wetted and shall remain so until the end of the test.
The conductive liquid shall consist of:
› Anhydrous polyethylene glycol of relative molecular mass 600: 800 parts by mass
› Water: 200 parts by mass
› Wetting agent: 1 part by mass
› Potassium Chloride: 10 parts by mass
When the test procedure calls for contact with the hose tube, it is preferable to use a copper plug of external diameter equal to or slightly greater than the hose ID or a steel hose stem, coated with the conducting liquid, and pushed 25mm (1") into the hose. An alternative for 50mm (2") and above hose would be to apply the conductive silver lacquer onto the hose ID, then insert the plug or hose stem. The electrical leads from the test instrument shall be clean and they should make adequate contact with the metallic copper foil and/or copper plugs/hose stems.

5.0 Preparation and Cleaning for Test

The surfaces of the hose shall be clean. If necessary, the hose surface may be cleaned by rubbing with Fuller's earth (magnesium aluminum silicate) and water, followed by a distilled water rinse, and allowing the hose to dry in a non-contaminating environment. Do not use organic materials that attack or swell the rubber, and do not buff or abrade the test surfaces.
The surface of the hose shall not be deformed either during the application of the contacts or during the test. When using test pieces, the supports shall be outside the test length. When using a long length of hose, the hose shall be uncoiled and laid out straight on polyethylene or other suitable insulating material. Care should be taken to ensure that the hose is insulated from any electrical leakage path along the length of the hose.

6.0 Test Conditions

For lab testing, the hose or hose assemblies shall be conditioned for at least 16 hours at +23° C ± 2°C (73.4°F ± 3.6°F) with a relative humidity not to exceed 70%. However, it is permissible, by agreement between the supplier and the customer, to use the conditions prevailing in the factory, warehouse, or laboratory, provided that the relative humidity does not exceed 70%.

7.0 Test Pieces

Prepare three test pieces approximately 300mm (12") long from samples taken at random from a production run or lot. Condition the test pieces per section 6.0.
Place the test piece on blocks of polyethylene, or other insulating material, to provide a resistance of greater than 100 Ω between the test piece and the surface on which the blocks are supported. Ensure that the leads from the instrument do not touch each other, the hose, or any part except the terminal to which each is connected.
Avoid breathing on the test surfaces and thus creating condensation that may lead to inaccuracies.

8.0 Procedure for hoses with conducting tube

Apply the electrodes as specified to the inside surface of the hose at each end of the hose. The edge of the electrode plug shall be coincident with the end of the hose. When using a conductive liquid, care shall be taken to avoid creating a leakage path between the tube and the reinforcement or cover of the hose.
Apply the metal contacts to the electrodes.
Apply the test voltage (9V) and measure the resistance 5 seconds ± 1 second after the voltage is applied.
Note: In previous editions of the Hose Handbook, this method was referred to as the Plug Method.

9.0 Procedure for hose with conducting cover

Apply the electrodes as specified to the outer circumference of the hose at each hose end. See Figure 6-1.
Ensure that contact is maintained with the electrodes around the circumference and that the contact pieces are sufficiently long enough for the two free ends to be held securely by a tensioning clip (see Figure 6-1) such that the fit of the electrodes is as tight as possible.
Apply the metal contacts.
Apply the test voltage (9V) and measure the resistance 5 seconds ± 1 second after the voltage is applied.

General Information

Electrical Resistance Tests for Hose and Hose Assemblies (continued)

Dimensions in Millimeters

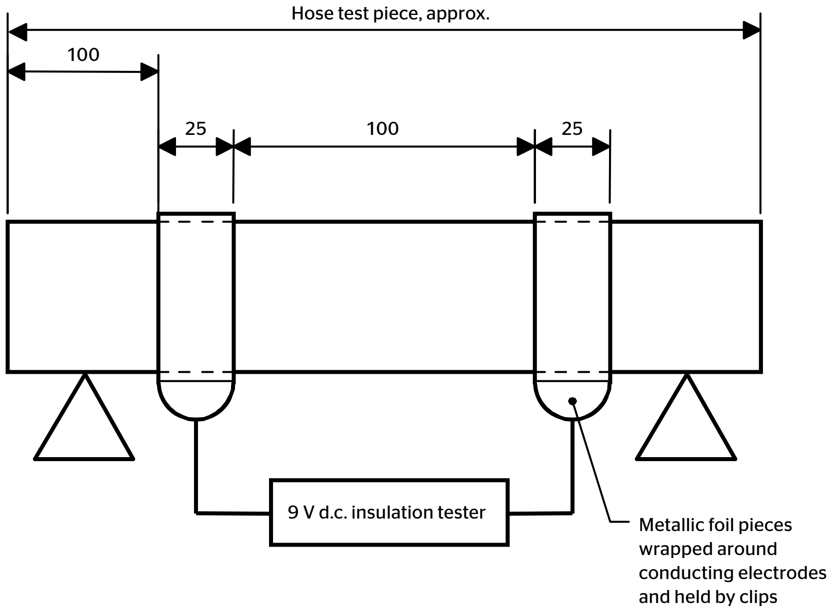


Figure 6-1 – Electrodes and contacts for testing hose

10.0 Procedure for hose with conducting or non-conducting compounds throughout

Apply the electrodes as specified on the inside surface at one end of the hose (end A) and on the outside surface at the other end of the hose (end B).

Apply the metal contacts to the electrodes.

Apply the test voltage (9V for conductive compounds and 500V for non-conductive compounds) and measure the resistance 5 seconds + 1 second after the voltage is applied.

Alternative method for non-conductive hose – Nail or “Pot Room” Method

Conduct test as follows:

1. Cut sample hose, 24 inches long
2. Assure that both inside and outside of hose are free of oil, dirt, etc.
3. Pierce sample ends with clean nails, as shown in Fig. 6-2.
4. Connect nails to 1000-volt DC power source and megohm meter or 1000 volt “megger” as shown in Fig. 6-2.
5. Record total resistance, in megohms.
6. Measure “test length” as shown in Fig. 6-2.
7. Divide total resistance by test length to get megohms per inch.

General Information

Electrical Resistance Tests for Hose and Hose Assemblies (continued)

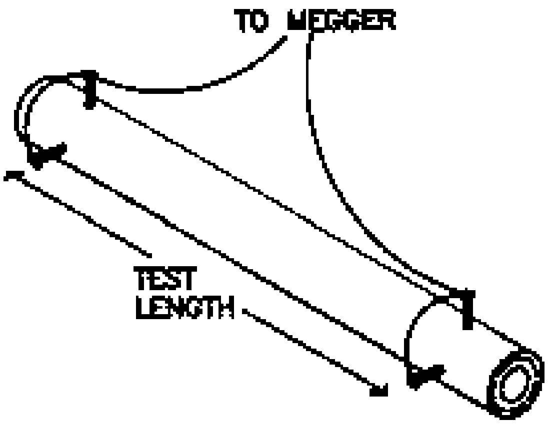


Figure 6-2 – Nail or "Pot Room" Test

11.0 Procedure for hose assemblies fitted with metal end fittings

When it is required that the resistance of a hose assembly be measured, the leads of the test instrument shall be attached directly to the metal hose shank (threaded end connection, fixed flange, stub end of a floating flange, etc.) of the metal end fittings.

Some hoses, especially thermoplastic hoses, have conductive layers within the hose construction. These hoses shall be tested as assemblies made with fittings and assembly techniques specified by the hose and fitting manufacturer.

Apply the metal contacts to the metal end fittings.

Apply the test voltage (9V) and measure the resistance 5 seconds + 1 second after the voltage is applied.

12.0 Procedure for measurement of electrical continuity

In certain types of hose constructions, electrical continuity is provided between the end fittings by means of a continuous wire or wires bonded to each coupling. When the construction is such that there are internal and external wires, the electrical continuity of both wires shall be established.

It is essential that contact resistance between the end fittings and the ohmmeter be minimized.

Apply the metal contacts to the metal end fittings.

Apply the test voltage (9V) and measure the resistance 5 seconds + 1 second after the voltage is applied.

General Information

Elastomers Used in the Manufacture of "Rubber Type" Products

Continental ContiTech Tradename	Industry Designation	Outstanding Feature	Sample Hose
Alphasyn	Modified Cross-Link Polyethylene	Excellent high-temperature chemical resistance.	Tube compound in Viper chemical transfer hose.
Carbryn	Carboxylated Nitrile	Excellent oil and abrasion resistance, good chemical resistance.	Cover compound on multipurpose hose: Gorilla and Ortac, pressure washer hose: Galvanator and Gauntlet.
Nitrile	Nitrile or Buna-N	Oil, solvent and aromatics resistance.	Tube and cover compound in premium air and multipurpose hose, petroleum transfer hose: Gorilla, Ortac, Flexwing Petroleum.
Chemivic	Nitrile	Oil and abrasion resistant compound. Excellent ozone resistance.	Cover compound air/mp hose. Tube compound in food hose: White Flexwing.
Chemrin	Chlorinated Polyethylene (CPE)	Excellent chemical resistance.	Tube compound chemical hose: Brown Flexwing.
Chlorobutyl	Chlorobutyl	FDA compliant material in food hose. Excellent heat resistance.	Tube compound in food hose and Flexsteel 250 CB Steam Hose.
Flosyn	Viton	Excellent oil and chemical resistance.	Tube compound in Orange Flexwing chemical hose.
Hysunite	Hypalon	Chemical and oil resistant.	Tube compound in chemical transfer hose: Yellow Flexwing.
Nylon	Nylon	Resistant to many paint sprays, lacquers, thinners, and mild chemicals.	Tube compound in NR Paint Spray.
Omegasyn	EPDM (abrasion-resistant)	Excellent abrasion resistance.Mild chemical resistance.	Cover compound: Viper.
SBR	SBR	Good abrasion resistance.	Tube and cover compound in water suction and discharge hose: Plicord Water S&D.
Pyrosyn	EPDM	Heat resistant	Tube compound in Flexsteel 250 Steam and Whitewater, Cover on Flexsteel 250 Steam and Flexsteel 250 CB Steam

General Information

Elastomers Used in the Manufacture of “Rubber Type” Products

Continental ContiTech Tradename	Industry Designation	Outstanding Feature	Sample Hose
Pliosyn	Ultra High Molecular Weight Polyethylene	Excellent chemical resistance. Good flexibility properties.	Tube compound in Fabchem chemical hose.
Pliovic	Polyvinyl Chloride	Lightweight, flexible and economical.	Pliovic 250, Spiraflex 1600.
Pureten	Natural Rubber	Excellent abrasion resistance, resilient, tensile strength, retains flexibility below 0˚F (-18˚C) (Poor ozone).	Tube compound in material handling hose: Blucor, Harvest, and Tan Flexwing.
Speclar	Cross-Link Polyethylene	Excellent chemical resistance.	Tube compound in Blue Flexwing chemical hose.
Spirathane	Urethane	Excellent abrasion resistance and good chemical resistance.	Spirathane LD and inner liner of Spirathane HD.
Teflon	Fluorinated Propylene or Teflon	Excellent chemical and petroleum resistance.	Tube compound in Hi-Per Teflon Hose.
TPE	Thermoplastic Elastomer	Heat and/or cold resistant, flexible and resistant to solvents.	Premier.
ChemiTuf Polybutadiene®	Polybutadiene Blend	Good tensile strength, high elongation, abrasion resistance, nonstatic properties.	Tube compound in Plicord Blast, Plicord Dredge Sleeve, Sand Suction
EPDM	EPDM	Heat and/or cold resistant, weather and ozone resistant, mild chemical resistance.	Tube and cover compound in multipurpose hose: Frontier, cover compound on chemical hose: Fabchem.
Weatherex	Butyl	Low permeability to air and gas; outstanding dampening and shock effect.	Tube compound in chemical transfer hose: Yellow Flexwing.
Wingprene	Neoprene (DuPont)	All purpose elastomer; good oil, heat and chemical resistance; very good ozone resistance.	Cover compound in petroleum transfer hose: Super Black Flexwing, and Red Flextra.