

Hose information is subject to change. For full details, visit our website or contact Customer Service.

**Properties of Saturated Steam**

(Abridged from Handbook of Chemistry and Physics – 39th Edition.)

Gauge Pressure (psi)	*Temperature of Saturated Steam (°F)
10	239
25	267
30	274
35	281
40	287
45	292
50	298
55	303
60	307
65	312
70	316
75	320
80	324
85	328
90	331
95	335
100	338
105	341
110	344
115	347
120	350
125	353
130	356
135	358
140	361
145	363
150	366

Gauge Pressure (psi)	*Temperature of Saturated Steam (°F)
155	368
160	371
165	373
170	375
175	377
180	380
185	382
190	384
195	386
200	388
205	390
210	392
215	394
220	395
225	397
230	399
235	401
240	403
245	404
250	406
255	408
260	409
265	411
270	413
275	414

\* Based on an atmosphere pressure of 14.7 psi.

When making a selection for this type of application, keep safety in mind. Be sure to **select a hose identified as steam hose**. There should be a permanent form of branding on the hose and not just on the package. The manufacturer's name, hose type and operating pressure should be readable. If not, don't use the hose. Also, be sure to identify the type of service the steam hose will be required to accomplish. What will the temperature of the steam be? Will the steam be superheated (dry) or saturated (wet)? What environment will this hose be used in? Be sure that you can recognize that spillage or accumulations of corrosive materials can have a detrimental effect on the hose cover.

Make sure the hose is installed properly by using hose couplings designed for steam service. Check the tightness with each use. Installing and using a shut-off valve between the steam source and the hose will maximize service life and operator safety.

Provide operators with adequate clothing which would include rubber boots, gloves, eye protection and full length protective clothing. **Do not** allow the hose to remain under pressure when not in service. Failure to depressurize and drain the hose when not in service can reduce the usable life of the hose. Continue to monitor hose to ensure it has not deteriorated to the point to where it can no longer provide safe service. Most, if not all steam hoses are date-coded by the manufacturer. It is recommended that assemblies be tagged with a date that it went into service. This information will be helpful in identifying those hoses that should be replaced due to age.

**Couplings:** Hose couplings are extremely important when steam is being handled. High temperatures and pressures inside steam hose act like a pressure cooker and cause the inside and outside diameters to shrink during use. Couplings must be specifically designed to combat this effect. **Only couplings designed for steam hose should be used.**

**CHEMICAL HOSE WARNING**

**Do not use chemical hose at pressures or temperatures above those recommended by HBD/Thermoid.** All operators must be thoroughly trained in the care and use of these hoses, and must, at all times, wear protective clothing and other appropriate safety equipment. A hose or system failure could cause the release of corrosive, flammable or poisonous material. Never allow chemicals to drip on the exterior of the hose or allow the hose to lie in a pool of chemicals since the hose cover may not have the same chemical resistance as the inner tube. If kinking or crushing occurs, immediately subject the assembly to the Hydrostatic Pressure Test and Examination. If the Hydrostatic Test is not an option, immediately replace the assembly. If the reduction of the I.D. is greater than 20%, replace the assembly.

**Extreme care must be taken when flushing out a chemical hose with water or removing clogs.** Some chemicals, such as concentrated acids may react with the water. Spattering may occur which could result in serious injury to the eyes or other areas of the body. When flushing the hose, care must be taken so that all chemicals or flushing fluids are disposed of according to EPA recommended guidelines.

**STATIC ELECTRICITY WARNING**

*Serious bodily injury, death, property damage or other loss, can result from the use of hose in hazardous or explosive atmospheres due to the buildup of static electricity from the movement of conveyed materials through the hose as well as movement or vibration of the hose against the other surfaces. Hose, as well as the entire system or application, used in such atmospheres must be properly grounded or bonded. For this reason, HBD/Thermoid recommends only hose with static wire be used.*

Static electricity, as a source of ignition for flammable vapors, gases and dusts, is a hazard common to a wide variety of industries. A static spark can occur when an electrical charge accumulates on the surfaces of two materials that have been brought together and then separated (between two solids, between a solid and a liquid, or between two immiscible liquids, i.e., incapable of mixing). One surface becomes charged positively and the other surface becomes charged negatively. If the materials are not bonded or grounded, they will eventually accumulate a sufficient electrical charge capable of producing a static spark that could ignite flammable vapors, gases and dusts. Some common processes capable of producing a static ignition are as follows:

- The flow of liquids (for example, petroleum or mixtures of petroleum and water as well as any flammable fluids) through hose, pipes or fine filters.
- The settling of a solid or an immiscible liquid through a liquid (e.g. rust or water through petroleum).
- The ejection of particles or droplets from a nozzle (e.g. water washing operations or the initial stages of filling a tank with oil).
- The vigorous rubbing together and subsequent separation of certain synthetic polymers (e.g. the sliding of a polypropylene rope through PVC gloved hands).

Preventing and/or dissipating static electricity as an ignition source can be accomplished through bonding, grounding or possibly selecting a different non-static conducting material. Bonding is the process of connecting two or more conductive objects together by means of a conductor. Grounding, or earthing, is the process of connecting one or more conductive objects to the ground.\*\*

Certain Thermoid hose incorporates a static wire, which if properly coupled can be used to ground the hose assembly. Other parts of the application or equipment may have to be grounded as well. Hose that does not contain a ground wire will nevertheless have to be grounded if used in an explosive or hazardous atmosphere. In all applications, it is the user's responsibility to ensure the hose assembly and equipment it is used on, is properly grounded to earth.

\*\* Excerpts from Process Safety Handling Hazardous Chemicals, 1/97: Standards & Guidelines – Occupational Safety and Health Administration.

GENERAL INFORMATION