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1 Scope

Polytetrafluoroethylene (PTFE)-lined pigtails are used in the filling and discharging of compressed gas cylinders. This publication provides a minimum standard for flexible, stainless steel, braided, PTFE-lined pigtails that have a nominal inside diameter (ID) of 0.25 in (6.4 mm) or less and shall have a maximum allowable working pressure (MAWP) of at least 3000 psig (20 680 kPa).^{1, 2}

2 Materials

A basic pigtail includes the tube, braid reinforcement, and permanently attached end fittings. PTFE-lined pigtails should only be used with gases that are compatible with their materials of construction.

PTFE-lined pigtails are not suitable for use with cryogenic liquids because of temperature incompatibility or with poisonous, toxic, or pyrophoric gases because permeation of gas through the PTFE wall creates a potential hazard. PTFE-lined pigtails are not recommended for hydrogen or helium service because of excessive effusion.

2.1 Tube

The tube material shall be seamless, extruded, virgin PTFE material.

2.2 Braid reinforcement

The reinforcement material shall be corrosion-resistant, 300 series stainless steel wire or equivalent material evenly and firmly braided over the inner tube. There shall be no splices or broken wires in the braid.

2.3 End fittings

End fittings shall be manufactured using materials that are compatible with the gases and conditions to which they will be subjected.

3 Construction

3.1 Fitting attachment design

The attachment of the fitting to the hose shall be a permanent, swage, or crimp design. Field attachable or reusable fittings shall not be used. The fitting design shall enable the pigtail assembly to reach minimum burst pressure without pulling out or separating from the hose.

3.2 Lubricants

No lubricants shall be used when the fittings are attached to the hose.

3.3 Length tolerance

Pigtail length shall be measured from the end of one hose fitting to the end of the other hose fitting not including elbows, valve inlet connections, or other options. Tolerance ranges shall be ± 0.25 in (± 6.4 mm) for lengths up to 24 in (61 cm); ± 0.5 in (± 13 mm) for 24 in to 60 in (61 cm to 152 cm) lengths; and $\pm 1\%$ for assemblies greater than 60 in (152 cm) in length. The length shall be measured when the pigtail is not pressurized.

3.4 Flow restriction

The nominal ID of the inner tube shall be maintained throughout manufacturing. There shall be no flow restrictions created by improper hose end preparation, protruding wires at hose ends, tube kinks, etc.

¹ kPa shall indicate gauge pressure unless otherwise noted as (kPa, abs) for absolute pressure and (kPa, differential) for differential pressure. Also, kPa values are rounded off per CGA P-11, *Metric Practice Guide for the Compressed Gas Industry* [1].

² References are shown by bracketed numbers and are listed in order of appearance in the reference section.