

# Stainless Steel *V/S.* PVC/CPVC

Topic	UL 1738 Stainless Steel	PVC/CPVC
<b>Performance and Safety</b>	<ul style="list-style-type: none"> <li>• Large overall Factor of Safety</li> <li>• No thermal expansion issues</li> <li>• Not susceptible to environmental stress cracking</li> <li>• Long history of proven reliable performance</li> <li>• Superior strength, no loss of structural integrity</li> <li>• Designed for positive pressure</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal overall Factor of Safety</li> <li>• No provision for thermal expansion (2-3 times greater expansion rate than stainless steel)</li> <li>• Susceptible to environmental stress cracking (aging and embrittlement process results in leakage potential)</li> <li>• Cracking and/or failure of solvent welds may cause leakage</li> <li>• Possible degradation from UV light exposure</li> <li>• Toxic odors if severely overheated</li> </ul>
<b>Temperature Limitations and Concerns</b>	<ul style="list-style-type: none"> <li>• Maximum normal use temperature of 600°F but can withstand much higher temperatures</li> </ul>	<ul style="list-style-type: none"> <li>• Flue gas temperatures may cause PVC &amp; CPVC to reach their “Heat Deflection Temperature” (HDT) limits: approximately 149°F (PVC) and 194°F (CPVC)</li> <li>• Plastics begin to soften/lose strength when HDT is exceeded. Some boilers/water heaters barely qualify to use PVC/CPVC, yet are known to produce higher flue temperatures as they age, resulting in HDT’s being exceeded &amp; possible product failure, including stress cracking.</li> </ul>
<b>Available Technical Support</b>	<ul style="list-style-type: none"> <li>• Extensive technical support available from the manufacturer</li> </ul>	<ul style="list-style-type: none"> <li>• Little or no technical support available (for use as a vent system)</li> </ul>
<b>Installation</b>	<ul style="list-style-type: none"> <li>• Fast, safe and easy product installation</li> <li>• Complete instructions provided</li> <li>• Laser welded seams and factory installed gaskets</li> </ul>	<ul style="list-style-type: none"> <li>• Field preparation required (cutting, cleaning, priming, solvent welds and curing)</li> <li>• PVC/CPVC manufacturers do not provide installation instructions for flue gas venting applications</li> </ul>
<b>Codes /Test/Standards</b>	<ul style="list-style-type: none"> <li>• UL 1738 tested, listed and labeled for the application</li> <li>• Meets all code requirements (including fire codes)</li> </ul>	<ul style="list-style-type: none"> <li>• Not listed to UL 1738 for gas appliance venting</li> <li>• Performance concerns with through penetrations (firestop locations)</li> <li>• Defined as a combustible and has no flame/smoke rating</li> <li>• Must be fire wrapped within a plenum space (adds material/labor costs)</li> </ul>
<b>Application Versatility</b>	<ul style="list-style-type: none"> <li>• Wide range of applications</li> <li>• Long term proven performance with Cat II, III, &amp; IV appliances</li> </ul>	<ul style="list-style-type: none"> <li>• Limited applications due to temperature limitations</li> <li>• No double wall option</li> <li>• Not designed or endorsed by PVC/CPVC pipe manufacturers for venting flue gases</li> </ul>
<b>“Green” Contributions</b>	<ul style="list-style-type: none"> <li>• Recycleable and made from recycled steel</li> </ul>	<ul style="list-style-type: none"> <li>• Possibility of chloride leaching and long term leakage</li> <li>• PVC, when utilized in inappropriate applications, can be very damaging to the environment and human health</li> </ul>
<b>Warranty</b>	<ul style="list-style-type: none"> <li>• Factory Warranty</li> </ul>	<ul style="list-style-type: none"> <li>• No Warranty</li> </ul>