

## FDA Diaphragms – PTFE Grades

### HC4 Diaphragm Valves

HC4/022/01/09.03

Grade Designation	214/425 PTFE	214S/245 PTFE (Steam)
General Synopsis	<p>Polytetrafluoroethylene resists almost all chemicals. Some exceptions are fluorine and related oxidizing compounds such as metallic sodium and other alkali metals. There is no known solvent for PTFE, the resin exhibits a very broad range of chemical and thermal serviceability. However, the effects of temperature, pressure and absorptivity of chemicals on PTFE and their interactions should be considered. These physical conditions usually limit the conditions under which PTFE will perform satisfactorily.</p>	<p>Polytetrafluoroethylene developed mainly where intermittent steam sterilization is used, resisting the effect of high temperature/vacuum conditions.</p> <p>Chemical resistance as standard 214.</p>
Characteristics	<p>Virgin PTFE facing with EPM organic, peroxide cure, black reinforced, rubber backing support diaphragm.</p> <ul style="list-style-type: none"> <li>Tensile Strength = 32 N/mm<sup>2</sup></li> <li>Elongation at break = 400-500%</li> </ul> <p>Alternative backing material: Butyl (IIR) resin cured grade 214/300</p>	<p>214S facing has EPM rubber backing</p> <ul style="list-style-type: none"> <li>Superior chemical resistance.</li> <li>Excellent creep and compression resistance.</li> <li>High cold flow and good high temperature flow resistance.</li> <li>Reduced permeability.</li> <li>Tensile strength = 32 N/mm<sup>2</sup></li> <li>Elongation at break = 650%</li> </ul>
Size Range	0.25"-10.00" (DN8 to DN250)	0.25"-8.00" (DN8* to DN200)
Temperature Range	-4°F to 320°F (-20°C to 160°C)	-4°F to 329°F (-20°C to 165°C)
Method of Attachment	0.25" & 0.38" (DN8 & DN10): button 0.50"-10.00" (DN15–DN250): bayonet	0.25" (DN8): screw(pure performance) 0.50"-10.00" (DN15–DN250): bayonet
Max. Intermit. Steam Temp Recommended	284°F (140°C)	293°F (145°C)
Max. Cont. Steam Temp Recommended	320°F (160°C)	329°F (165°C)
Comments	<p>PTFE is subject to physical distortion from steam and vacuum effect during sterilization.</p> <p>Performance will depend on frequency of steam cleaning also duration and temperature.</p> <p>Diaphragm is unaffected on constant steam.</p>	<p>Used mainly for Biopharm applications which can include intermittent steam.</p> <p>Will provide longer service life, reduced maintenance costs.</p> <p>EPM backing generally provides optimum backing material. 59°F (15°C) higher temperature performance over butyl backed diaphragm.</p>

\*Note: Spares available with button attachment.