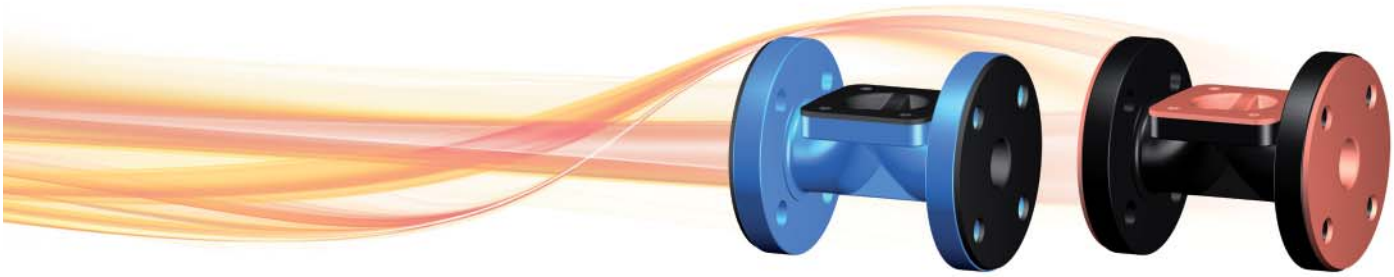
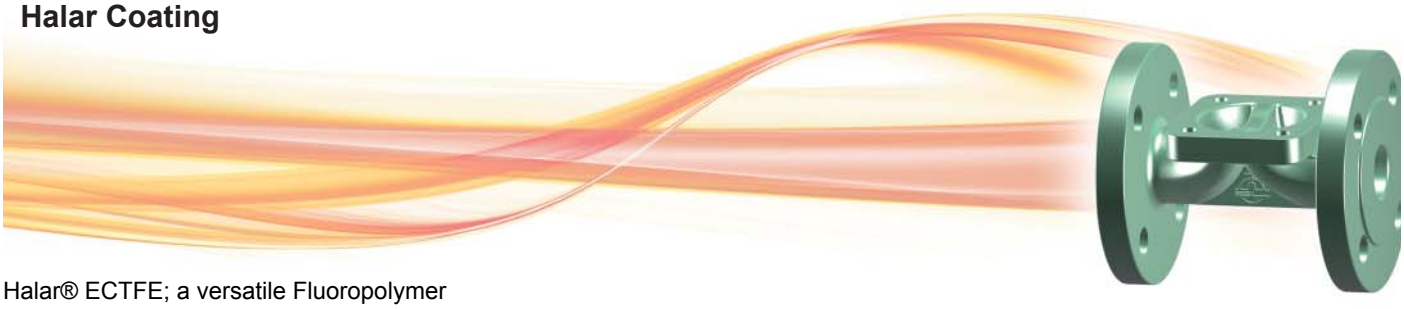


Application Guide - Lining

Lining Material	Applications
Hard Rubber - HR (Ebonite), sulphur cured, carbon black reinforced. Designated by a 'Sky Blue Spot' on end flange.	Used for inorganic salt solutions, dilute mineral acids, chlorine water, deionised and potable water.
Soft Natural Rubber-SR Polyisoprene, sulphur cured, carbon black reinforced. Designated by a 'white spot' on end flange.	Excellent abrasion resistance for powders, slurries such as clays, fly ash and cement products.
Soft Butyl Rubber-BR Isobutylene isoprene (IIR), sulphur cured carbon black reinforced. Designated by a 'Dark Blue Spot' on end flange.	Good for corrosive and abrasive slurries, dilute mineral acids and acidic slurries. Avoid chlorine and chorine solutions.
Soft Polychloroprene (Neoprene) Rubber Non-Sulphur cured carbon black reinforced. Designated by a 'Red Spot' on end flange.Hardness 65- +/- 5° Shore 'A'	Used on abrasives and minerals processing where small percentages of hydrocarbons are present.
Soft Hypalon® Rubber - (Chloro sulphonated polyethylene) Non-Sulphur cured carbon black reinforced. Designated by a 'Green Spot' on the end flange.	Chemical resistance to dilute / medium strength acids and chlorinated brine solutions and sodium hypochlorite
Linatex® Specially compounded "RED" coloured soft lining Hardness 45 +/- 5º Shore 'A'	Used for "WET" slurry applications
Speciality lining material for specific service	
Halar® Co-polymer of ethylene and chlorotrifluoroethylene. Electrostatically applied coating.	Used for concentrated acids and salts containing hydrocarbons. Not suitable for dilute acids and inorganic salt solutions near to their boiling point. Minimal resistance to abrasive services.
Polytetrafluoro alkoxy-PFA® . Natural colour.	Most suitable for concentrated mineral acids at high temperature, aromatic and aliphatic and chlorinated solvents.
Ethylene tetrafluoroethylene-ET-FE®. Natural colour.	Most suitable for concentrated mineral acids at high temperature, aromatic and aliphatic and chlorinated solvents
FEP & PVDF	Consult Diaval@ *(DN 350 under special manufacture)*

Halar Coating

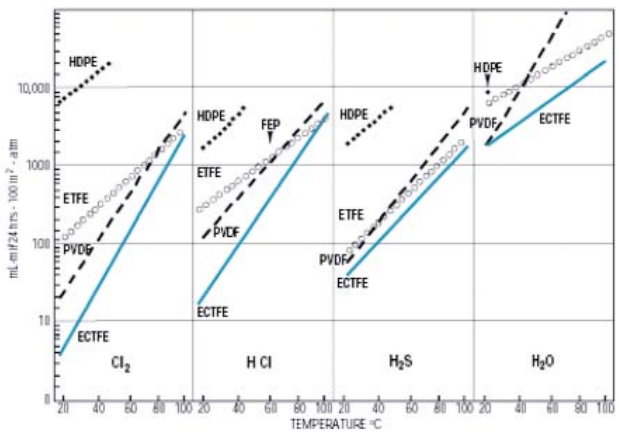


Halar® ECTFE; a versatile Fluoropolymer
Manufactured from ECTFE, is a melt processable Fluoropolymer. Halar® ECTFE is a partially fluorinated semi-crystalline polymer offering a unique combination of mechanical properties, thermal and chemical resistance with an outstanding ease of processability. It is a copolymer of ethylene and chlorotrifluoroethylene that brings advantages to valve application when compared to other Fluoropolymers. It is a very versatile polymer, available in all forms to meet processing needs. It offers excellent resistance to abrasion, harsh chemicals, and permeation. These characteristics have made of Halar® ECTFE a material of choice for several applications in the field of corrosion protection in the chemical industry. Halar® ECTFE is a high purity Fluoropolymer with a very smooth surface, which accounts for its extensive use in the semiconductor industry. Halar® meets the demands for fire-safe, non-fire propagating plastics. Halar® ECTFE powder coatings offer the greatest ease of processing, with the ability to be applied in high thickness when required.

Properties of Halar® ECTFE
Halar® offers a unique combination of properties especially as a coating and a liner. Halar Fluoropolymer coatings provide outstanding chemical resistance, good electrical properties, a broad-use temperature range from cryogenic to 150 ° C, and meet the requirements of UL-94 V-O vertical flame test in thicknesses as low as .007 (7mils). Halar® is resistant to strong mineral and oxidizing acids, alkalis, metal etchants, liquid oxygen, and essentially all organic solvents except hot amines.

Halar® ECTFE the DIAVAL® choice of Fluoropolymers
It is the preferable DIAVAL® choice over other Fluoropolymers such as PVDF, PFA or PTFE in example. For those applications exceeding the capabilities of other Fluoropolymers, Halar® can be evaluated before resorting to a fully fluorinated polymer, offering a compromise between the mechanical properties of a partially fluorinated plastic (like PVDF in example) and the chemical and thermal resistance which is typical of totally fluorinated polymers.
Halar® presents many other advantages over other Fluoropolymers as in example:
-Much better permeability properties.
-Smoother surface that precludes shedding of particles whilst avoid trapping.
-Environmental resistance properties.
-Thermal Properties and Chemical resistance properties.
-Electrical properties
-Mechanical Properties.

The graph shows how Halar® is rated in comparison to other Fluoropolymers in terms of permeation resistance to corrosive media at different temperatures.



The electrostatic powder coated Halar® shows superior performance than conventional Fluoropolymers that can be shown with more information available in our Data Base on request.

Main Duties / Limits of use

Liquids compatible with materials of construction, acc. to Directive 2014/68/EU Annex II tables 8 (group 1*) & 9 (group 2*) up to category I

Rubber Diaph.

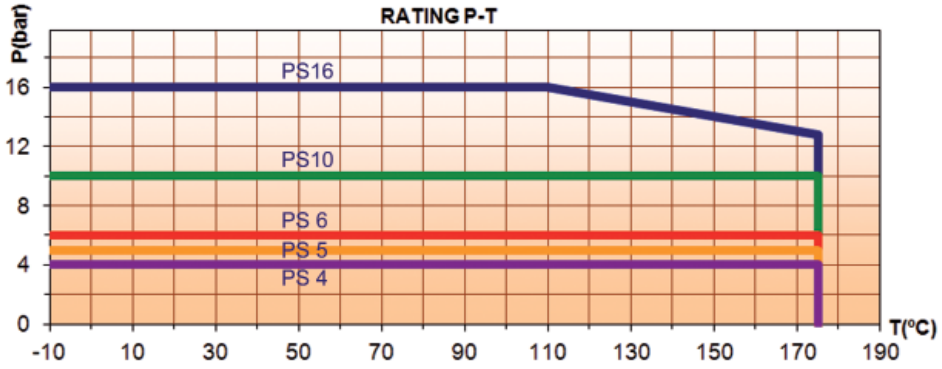
PS:16 bar DN10-50 (Art.4-Parr.3)
PS:10 bar DN65-150 (Art.4-Parr.3)
PS:6 bar DN200 (Art.4-Parr.3)
PS:5 bar DN250 (Art.4-Parr.3)
PS:4 bar DN300 (Art.4-Parr.3)

PTFE Diaph.

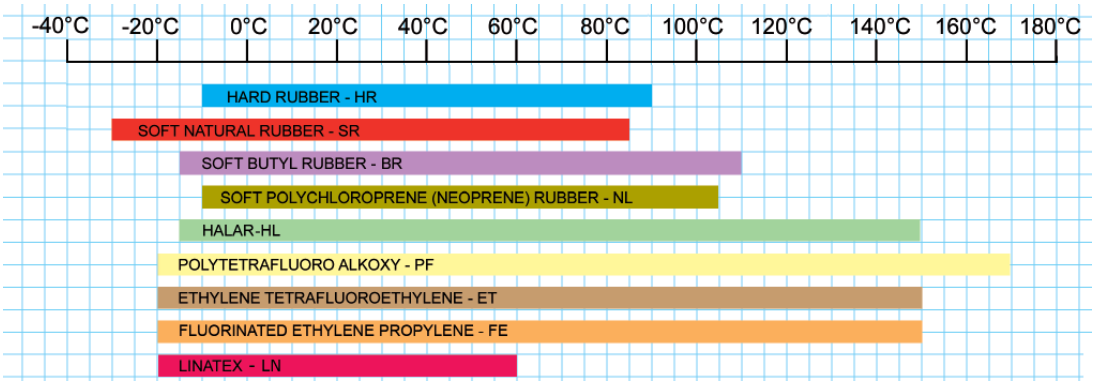
PS:10 bar DN10-125 (Art.4-Parr.3)
PS:6 bar DN150 (Art.4-Parr.3)

Combination of Body + Lining + Diaphragm determines the P-T limit of use of the valve
Questions referring to chemical resistance, please consult us
Observe also pressure/temperature limits on diagrams under
**Classification of fluids (group 1 or 2) acc. to Directive 2014/68/EU, Article 13*

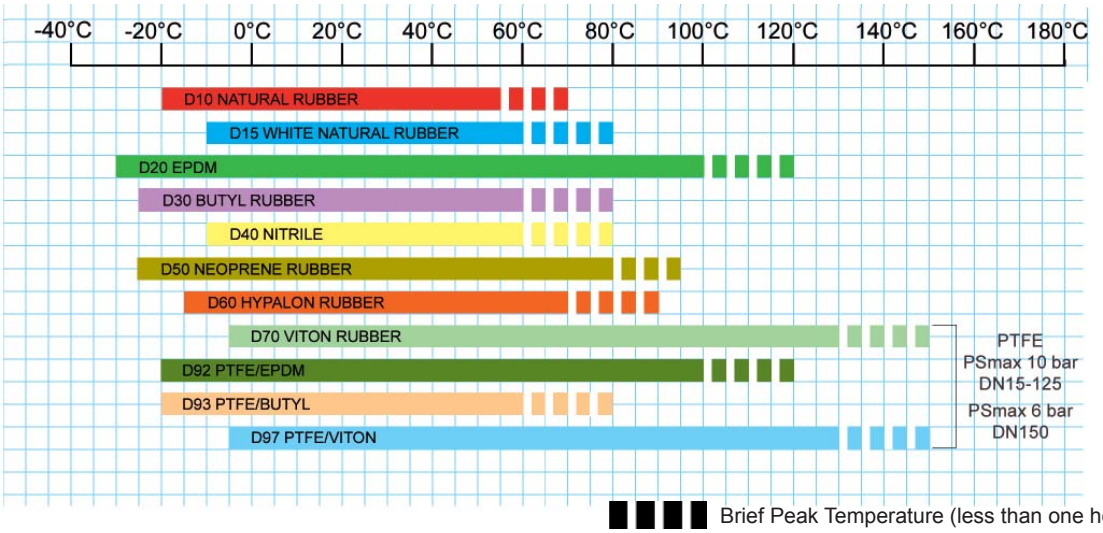
Bodies (Ductile iron)



Linings



Diaphragms



Brief Peak Temperature (less than one hour)

Temperature Values are for neutral fluids and not plotted against any pressure parameter, the application engineer should consider that working limits are affected by the actual pressure / temperature relationship.Temperature values also depends on medium through the valve.