

REINFORCED DIAPHRAGMS WITH DISPERSED FIBRE TECHNOLOGY (DFT®)



Diaphragms need reinforcement in order to work under temperature and pressure changes whilst maintaining flexibility, e.g. gas control applications.

Traditional fabric reinforced diaphragms offer limited possibilities for the design engineer when a complex profile, varying material thicknesses or extra sealing is required whilst maintaining functionality.

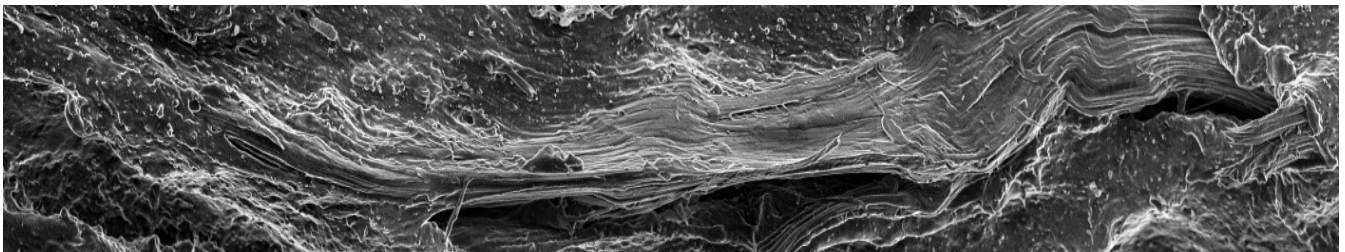
These gaps are closed by using DFT material technology; different from traditional diaphragms as it does not have solid fabric inlay but chopped fibres dispersed completely into the rubber material.

VALUES FOR THE CUSTOMER

- More complex profiles at varying geometries and thicknesses (typically 0.2 to 3mm) for pressures up to 250 psi.
- Extended design possibilities, integration of additional functions (e.g. beads), eliminating assembly processes.
- No delamination of elastomer from fabric, reducing the risk of cracks and leaks.
- Enhanced dynamic properties within application, e.g. smooth actuation, low hysteresis and improved low temperature resilience.
- Tailor-made materials according to customer needs.
- Improved ozone resistance.

DFT® - DISPERSED FIBRE TECHNOLOGY

Freudenberg developed a unique and innovative method of producing fabric reinforced diaphragms, by dispersing fibres within the rubber compound. Fibres dispersed within the rubber allow moulding, in one press lift, of complex shapes which have strength equally in all directions and planes, with improved flexibility and durability.



Dispersed Fibre Technology

FEATURES AND BENEFITS

Greater flexibility whilst not compromising performance, extending the design possibilities for the engineers.

Operating pressures, up to 250 psi (17 bar), exceeds required application performance (See Chart).

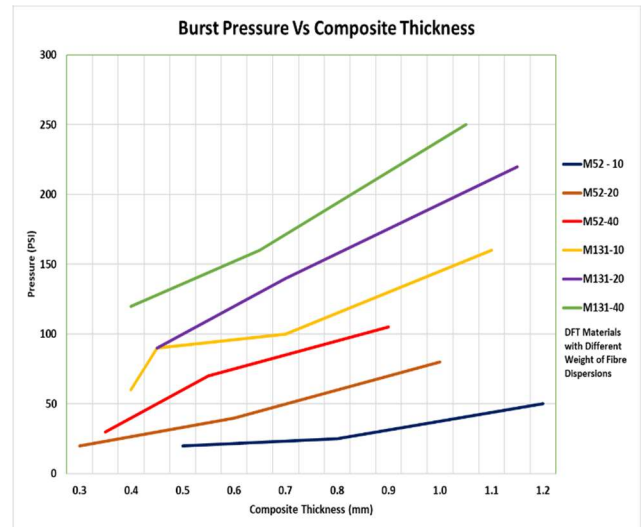
Longer Lifetime by 5 times, proven by extensive testing of over three million cycles, outperforming the required 20 years of life expectancy for gas meters.

No potential leak path due to DFT structure as there is with coated fabric, therefore no passage of the media through the material or wicking can occur.

Homogeneous tensile strength in all directions, in contrast to diaphragms with solid fabric inlay, showing high strength in two directions – warp and weft – but not diagonally.

Increased ozone resistance, preventing the possibility of cracking found in rubber coated fabric, especially when under stress, and all rubber seals.

Tailor made materials, including NBR, HNBR, FKM, EPDM and ECO. DFT can be reformulated for your exact requirements over a range of thicknesses.



Burst Pressure Vs Thickness

Burst pressure is increased with increased thickness and parts per weight of DFT to rubber, without compromising flexibility or durability of the diaphragm.

Contact Us

Our experienced and dedicated staff are on hand to provide process support from initial concept through qualification and delivery. For further details or if you have a current or future project please contact our team on the details below.

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