



metal sitcoflex bellows

pressure considerations

The nominal pressure is the maximum permissible working pressure of the metal bellows when operating in 'normal' conditions - i.e at ambient (room) temperature and without pressure surges.

Operating temperature -

The operating temperature in particular will have a direct relationship on the pressure capability of the metal bellows as follows:

Temperature °C	AISI 304	AISI 321	AISI 316L
20	1.00	1.00	1.00
100	0.81	0.83	0.83
200	0.65	0.69	0.69
300	0.56	0.62	0.61
400	0.50	0.58	0.56
500	0.47	0.56	0.53
600	0.31	0.34	-
700	0.10	0.10	-

Length of metal bellows -

As the length of the metal bellows or the number of its corrugations increases, its internal pressure capability reduce due to the increasing instability of the corrugations. Buckling or squirming of the metal bellows is evidence of this process.

This can be overcome by using an internal or external guide sleeve with the bellows to control the movements.

Excessive pressure –

Excessive internal pressure coupled with large angular or lateral movements can deform the corrugations of the metal bellows, reducing the bellows effectiveness and its service life.

Spring rates

The various axial, angular and lateral movements Result from external forces on the metal bellows. As these movements occur, a specific resistance is formed which is proportional to the external force. This proportional factor is called the spring rate.

The spring rate reduce as the operating temperature of the application increases, generally as follows:

Temperature °C	Multiplier
20	1.00
100	0.97
200	0.93
300	0.90
400	0.86
500	0.83