

## Limits of liner loads under various situations

### General FLUTE guidelines

	diameter	pressure limits		eversion head max (ft) *	winch	deflated	liner slit tension limit (lb) ***
		burst (psi)	long term (psi)		inversion max tensio (lb)	liner worki tension lim (lb) **	
400 denier single coat	4	78	31	72	196	490	245
	6	52	21	48	294	735	368
	8	39	16	36	392	980	490
	10	31	12	29	490	1225	613
	12	26	10	24	588	1470	735
	14	22	9	21	686	1715	858

210 denier single coat	4	62	25	58	157	392	196
	6	47	17	38	235	664	332
	8	31	12	29	314	784	392
	10	25	10	23	392	980	490
	12	21	8	19	470	1176	588
	14	18	7	16	549	1372	686

840 denier based on DC meas. differences	4	98	39	90	245	613	306
	6	65	26	60	368	919	459
	8	49	20	45	490	1225	613
	10	39	16	36	613	1532	766
	12	33	13	30	735	1838	919
	14	28	11	26	858	2144	1072

\* Very sharp rocks can still puncture the liner

\*\* This is 1/4 the max. tensile load without stress concentration

\*\*\* This is 1/2 the working tension limit and far higher than the tear strength valu

updated  
3/18/2008

Note:

The winch inversion max. tension is based on the assumption that the pressure beneath the liner in the borehole is communicated to a breakout above the EP to cause a high hoop stress.

This is more threatening than the press. difference across the EP.

Beware that one can easily cavitate a 4 inch liner with a tension :

$T_{cav} = A/2 \cdot (H \cdot 4.33 + 14.7)$ , A is the hole area in inches, H is the height of the water column, ft.. above the EP.

long. T. max in psi is the draw down with the listed winch tension  
smaller holes have a larger drawdown at the same tension.

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