

No. 104 Four-Ply Airmount® / Airstroke® airsprings

For years Firestone has offered most of our line of Airmount isolators and Airstroke actuators in either the standard two-ply or the optional four-ply construction. These “plies” refer to layers of nylon tire cord which form the strength element in the body of the part. The advantage of the four-ply unit is that it is capable of holding higher pressures, and therefore, can exert greater force or take higher shock loads.

The exact details of the pressure capability vary with the part and the height. You should refer to page 17 of the Design Manual for more information. Basically, you can use the generalization that on a part with a 7 bar maximum in the catalog, the four-ply version will have 12 bar capability.

It should be noted that the four-ply parts do have some differences from the two-ply. The parts are stiffer without air, and therefore, take a little more weight to retract them. Additionally, this will cause some higher heat build-up in high speed applications. Also, because of the extra wall thickness, you should allow an extra 1/8 inch for minimum height.

As stated above, the standard parts shown in the Design Manual are two-ply. For the four-ply versions, which carry different part numbers, you can use the same static data. Below is a cross-reference chart which shows the convoluted parts and their related four-ply versions. This chart can also be used to relate one, two, and three-convolution parts of the same diameter.

**FIRESTONE AIRMOUNT/AIRSTROKE
CONVOLUTED TWO & FOUR PLY AIRSPRINGS**

Single Convolution		Double Convolution		Triple Convolution		Maximum Diameter
2 Ply	4 Ply	2 Ply	4 Ply	2 Ply	4 Ply	
16						152
131		25				165
110						211
		224				203
116	117	26				231
116-1						244
115	124	20	202			257
19		22	210	38		328
19-.75		22-1.5	210-1.5			343
113	128	21	205	313	39	386
113-1		21-2				404
119		28	201	312	314	442
121	144	203	218	323	324	516
126	145	29	207	320	328	569
141		200				660
134-1.5	138-1.5	211	215	319	321	709