AIR SPRING TYPES

1B SINGLE CONVOLUTE – BELLows
* SLEEVE TYPE
* CRIMPED

2B DOUBLE CONVOLUTE – BELLows
* SLEEVE TYPE
* CRIMPED

3B TRIPLE CONVOLUTE – BELLows
* CRIMPED

1S SLEEVE TYPE ROLLING LOBE
* SLEEVE TYPE

1R CONVENTIONAL ROLLING LOBE
* CRIMPED
Elements of the part identification system are shown in the following example for ordering an assembly with the part number 2B12-300.

2 B 12-300

- The three digits that represent a unique identifier for this particular air spring
- The nominal outside working diameter of the air spring assembly, in inches
- Refers to the type of air spring:
  - B – Bellows
  - R – Rolling lobe (bead type conventional)
  - S – Sleeve (beadless rolling lobe type)
- Number of convolutions in the assembly:
  - 1 – Single convolute
  - 2 – Double convolute
  - 3 – Triple convolute
**Rolling Lobe Air Spring**

Rolling lobe air springs incorporate a piston which allows the flexible member to roll along the piston’s surface.

**Sleeve Type Rolling Lobe**

Sleeve type rolling lobe air springs employ a flexible member without an internally molded bead. The flexible member is attached to the end retainers by pinching the material between the end retainers and exterior crimp rings which are then swaged to the proper diameter.
**Bellows Type Air Spring**

Bellows air springs have one, two or three convolutions in the flexible member. There are two styles of bellows; crimped design and sleeve type.

With the crimped design, the end retainers are permanently attached by mechanically crimping the retainer around the built-in bead wire of the flexible member.

**Sleeve Type Bellows**

Sleeve type bellows offer similar characteristics to the crimped design bellows, but, as with the sleeve type rolling lobe the flexible member is constructed without internally molded bead wires. The end retainers are permanently attached by pinching the flexible member between the end retainers and external crimp rings which are then swaged to the proper diameter.

Sleeve type bellows offer the lowest force to compress of any type of air spring.
FLEX MEMBERS

Super-Cushion® air spring flex members are built of two plies of either nylon or polyester fabric, coated with rubber. They are designed to withstand inflation pressure, frequent flexing and misalignment. The rubber cover protects against abrasion, aging and the external environment. A rubber liner protects against the interior environment and loss of air. The elastomer used in Super-Cushion air springs can be a natural rubber compound or Wingprene®.

The majority of vehicular Super-Cushion air springs are made of natural rubber for durability and low temperature capability. Wingprene springs are available for special applications where excessive exposure to oil may exist. Contact Veyance Technologies, Inc. for details.

RETAINERS

The purpose of the upper and lower retainers is to attach to the flexible member of the Super-Cushion air spring, thus creating an air tight seal. All retainers and pistons are made of an engineered thermoplastic or thermoset composite material; or corrosion resistant aluminum, zinc or steel.

Upper and lower retainers are made with blind taps, or protruding bolts to facilitate attachment. The upper retainer has a tap to accommodate a 1/4", 1/2" or 3/4" air fitting or valve. Although it is called the upper retainer for reference, it need not be in the up position to function properly; the attitude of the air spring does not affect its function.

BUMPERS

A rubber bumper inside the air spring assembly helps protect the flexible member and the end retainers in those applications where external compression stops are not practical. Internal bumpers are recommended when:

1. The assembly will frequently reach the “compressed height without a bumper.”*
2. The assembly will occasionally reach the “compressed height without a bumper,”* but with a significant load and impact.
3. A vehicle may have to operate on a deflated air spring assembly.

*See Glossary and/or Selection Charts

END COMPONENT OPTIONS

**1. CRIMPED ON RETAINERS**

Available for springs:
- 1B9 and larger Bellows
- 2B9 and larger Bellows
- 3B12 and larger Bellows
- 1R8 and larger Rolling Lobes

Upper and lower retainers are attached by mechanically crimping the retainer around the bead wire built into the flexible member.

**2. SWAGED ON RETAINERS**

Available for springs:
- 1B5 thru 1B8 Bellows
- 2B6 thru 2B8 Bellows
- All 1S Sleeve Type Rolling Lobes

Upper and lower retainers are permanently attached by swaging a metal ring around the flexible member and end retainer.

**3. BOLTED BEAD RING**

In certain applications, used in place of crimped on retainers.

Available for springs:
- 1B9 and 2B9 Bellows
- 1B12 Bellows
- 2B19 and 2B22 Bellows

Upper and lower bead rings are attached by bolting each to the customer’s own mounting plate. An air tight seal is formed when all bolts are securely fastened through the bead ring into the mounting plate.