

## WHY USE BRAID?

Duraflex, Inc. recommends braided coverings over the following products for the reasons outlined:

- METAL HOSE
- BELLOWS
- EPDM
- PTFE
- RUBBER HOSE

### INCREASED PRESSURE RATING

- Applying one (1) to three (3) layers of braid to a hose or bellows significantly **increases the pressure carrying capacity** of the pressure carrier element!

Examples: Single Wall Typical .008" Thick Hydroformed Bellows <i>For Comparison values only!</i>	
CONFIGURATION	OPERATING PRESSURE RATING
No Braid	5 psi
Single Layer Braid	455 psi
Double Layer Braid	555 psi



### MOTION CONTROL DEVICE

- When applying braid to the exterior of a moving flexible element, the flexible inner element will be **restrained to within its motion design limits**; preventing unit from squirming or going into a plastic region leading to premature failure.
- Braid can be adjusted as installed & welded into the assembly to restrain the exact motion based on the relative tightness or looseness of the braid against the flexible element.
- Braid construction consisting of the thickness of the wire in the braid group (or "pic") can be altered depending on the level of strength needed.
- Braid construction consisting of the number of wires in a pic can be adjusted to achieve the desired mechanical properties. The lay of the braid pics (i.e. one over-one under or two over-two under) can be adjusted to give more or less coverage on the flexible element.

### SAFETY DEVICE

- **Braid can act as a protection from the skin temperature of the flexible element underneath.**
- Normally, due to the space between the outside surface of the flexible element & the inner diameter of the braid there is some heat loss & the braid will not burn the operator to the degree that could occur by touching the hot element itself.

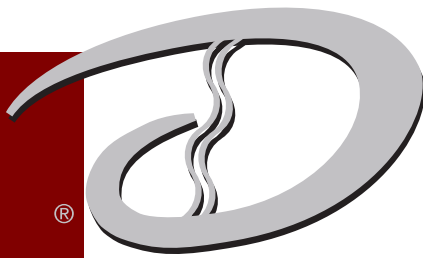
### TEMPERATURE

- An alternate approach to the above, proper installation & fabrication of the braid **can help maintain the inner temperature of the media in the flexible element** so operating equipment that requires a minimum temperature to perform properly can be controlled.

### PROTECTION

- **Having braid covering the exterior of the flexible element provides the inner flexible element with a very high degree of mechanical to mechanical damage.** Flexible elements, especially ones that are fabricated from thin wall (<.010" in wall thickness) & multi-ply are very susceptible to mechanical damage such as scratching, gouges & dents.

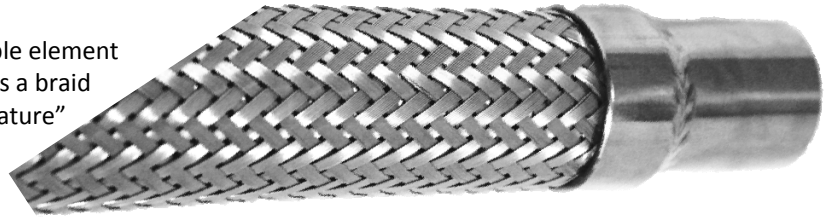




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### ESTHETICS

- Many end users do not consider a flexible element “finished” on the outside unless there is a braid covering; adding a sort of “high tech feature” to the assembly.



### INSULATION BASE

- **Braid provides a base for insulating the flexible element.** Trying to add insulation to a flexible element without braid can lead to collection of the insulation in the valleys of the flexible element. The braid cover helps to create a stable & consistent base for the insulation to conform to.

### CORROSION

- Outer braid can be used as a protective (sacrificial) layer against corrosion & oxidation. For corrossions protection, it’s very difficult for road salt to penetrate the braid layer & attack the thin-walled element underneath. For oxidation protection, the braid layer reacts to an oxidizing external environment & this protects the inner element underneath.

### INNER LINER

- **Used as a formed braided sheath to the INTERIOR of the carrier in the form of a liner.** An internal braid liner allows full calculated motion of the assembly, but keeps the flow of the media in a lamellar form rather than a turbulent flow.\*
- Turbulent flow is typically associated with a flow velocity that traverses up into the corrugations at 90° degrees from the original flow direction resulting in pressure losses, noise & harmful vibration leading to premature failures.

*\*The braid being unrestrained & flexible moves freely with the carrier.*



### MATERIALS

- |                       |
|-----------------------|
| ■ AL 6X               |
| ■ Bronze              |
| ■ Hastelloy C-276     |
| ■ Hastelloy C-22      |
| ■ Hastelloy B         |
| ■ Inconel 600         |
| ■ Inconel 625         |
| ■ Inconel 718         |
| ■ Monel 400           |
| ■ T-304 SS (standard) |
| ■ T-321 SS            |
| ■ T- 316 SS           |
| ■ T-316L SS           |
| ■ T-316Ti SS          |
| ■ Titanium            |

