

<u>Damper Manufacture</u>	<u>Leakage Rate @ 4" w.g.</u>	<u>Aluminum</u>	<u>Blade Seals</u>	<u>Frame Seals</u>	<u>Bearings</u>
TAMCO 1500	3.74 CFM	Yes	Severe cold weather elastomer – extruded – with end caps **	Severe cold weather elastomer - extruded	Celcon/polycarbonate
ARROW AFD20	Class 1A rated < 8 CFM	Yes	Polycarbonate	Polycarbonate	Celcon/polycarbonate
RUSKIN CD 50	6.2 CFM	Yes	Rubber	Steel Spring	“m o lded synthetic”
NAILOR 2010/2020 “E A F”	3.4 CFM	EAF only *	Rubber	Steel Spring	Oillite

* Nailor provides two versions of 2010/2020. Standard Nailor steel product is often substituted if Extruded Aluminum Frame (EAF) is not specified.

Importance of blade seal material and manufacture – in cold climate applications, this material will shrink and increase leakage rates. Severe cold weather elastomer will not shrink in cold conditions and will perform as rated. Extruded seals are inserted into the blade and will not detach.

Importance of Frame Seals – Steel Spring Seals will wear, break, pop-out in most cases. As above, rubber material will shrink and increase leakage rates. Severe cold weather elastomer will remain flexible, perform consistently in all temperatures and will not pop-out.

Linkage – Bearing Materials – the quality of the linkage material will directly impact the performance and longevity of a damper. Celcon/polycarbonate is a long wearing material that will not require maintenance. TAMCO’s linkage is guaranteed for 20 years and has no “metal on metal” contact.

** Blade End Caps – Tamco is unique in their design with the application of blade end caps. The end caps are applied to insure long term performance and consistent low leakage through the life of the application.

Conclusions:

1. For best near term and long term performance of low leak dampers, TAMCO currently offers the best product.
2. ARROW follows in second place with a good “all around” design.
3. Ruskin’s linkage puts it slightly ahead of Nailor. Nailor’s flat plate side linkage is similar/same as their low cost product – their bearings will require maintenance based on materials utilized – access to side linkage for maintenance can be labor intensive. Ruskin’s Frame Seals are likely to create increased leakage as they wear / fail.