

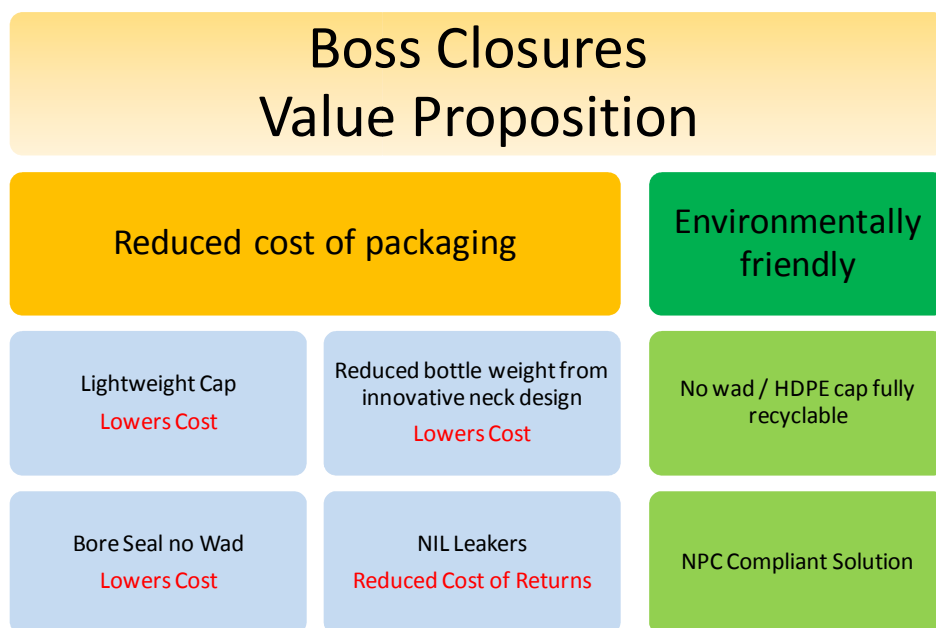
Boss Closures

Reducing pack weight with a bore seal or with an induction seal

What may surprise even the most experienced packager is that induction seals are being used to reduce pack weight and carbon footprint. The impact of this trend is far reaching and one of the best examples can be found in Australia.

Australian packagers, in particular, are under extreme pressure to reduce product pack weight and to enable even greater product recyclability. Induction or Bore sealing offers a viable solution.

Boss Closures is pleased to present its Bore Seal and Foil Options to the market together with its innovative 38mm neck design which extends the benefits of a bore seal to the bottle manufacturers as well.



PRIMARY BORE SEAL

- ❖ **Lightweight Cap**
- ❖ **Low Cost**

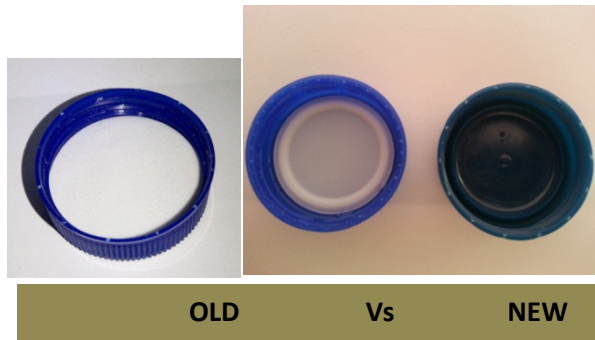
A 38 millimetre waded PE closure weighs approximately 3.75 grams. The new **patented** Boss Closure weighs just 2.25 grams with a bore seal and 2.95 grams with a foil. This represents up to a 48% weight reduction **reducing the cost of the closure** to the end user.



The strength of the cap completes the seal rather than the strength of the neck allowing a weight reduction in the bottle of 4-6 grams.

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❖ Fully recyclable



Without the need for a wad inside the closure to complete the seal together with the use of organoliptic HDPE resins the closure is fully recyclable with the bottle. The removal of the wad **reduces the cost** of the closure.

❖ Reduction in leakers by greater than 99% (as tested)

Boss Closures has fully tested its bore seal option including full shelf life and leakage trials. Boss closures have achieved greater than a 99% reduction in leakage rates which will **reduce the cost** of returns to the bottler.

FOIL OPTION

❖ All the benefits of the Primary Bore seal



Boss Closures unique bore seal when used with a foil seal both assists with the seating of the foil for sealing and provides a secondary seal after removal of the foil retaining ALL the benefits of the primary bore seal option.

❖ Does not require a secondary wad to reseal



Without a requirement to provide a secondary wad to seal the bottle after foil removal the Boss Closures bore seal option **reduces the cost** of a foil seal option.

❖ Tamper band is available as well as foil seal for tamper evidence.

The closure is available with our without tamper band when used with a foil.

❖ Other benefits are.

- ❖ foil seal is amortized in the HDPE saving, so no on-costs are incurred
- ❖ bacterial contamination is reduced
- ❖ oxidation is reduced
- ❖ storage and transit conditions are improved
- ❖ tampering is made even more evident

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UNIQUE NECK DESIGN



Boss Closures has a **patented** angled neck finish which is captured within the bore seal of the closure.

The neck design allows for a reduction in bottle weight as less plastic is utilised to strengthen the neck as the cap now provides all the sealing strength required. The unique design reduces the **head loads** required to apply the cap and achieve a leak proof seal which allows the weight and strength in the bottle and neck to be reduced. This provides an opportunity to **reduce the cost** of the bottle.

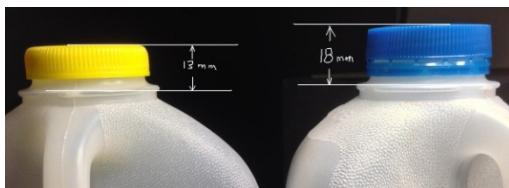
For comparison, a 2-litre HDPE milk bottle weighs approximately 45.00 grams the same sized bottle new (Boss Neck) weight has been manufactured at 39.00 grams, representing a 13% weight reduction. Other bottle types have shown reductions in weight of up to 10 grams.

❖ **The same neck is used whether a foil option is used or not.**



The same neck design can be used with a foil option requiring no changeover costs to the bottler. The Boss Closure assists with the seating of the foil on the landing area and in providing a leak proof seal.

❖ **Lightweight dust cover cap available**



If required Boss Closures can provide a dust proof cap, which provides NO SECONDARY SEAL.

❖ **Reduces the incidence of “cocked caps”.**

The unique angled finish provides a leading edge for cap application allowing the cap to be centred before being torqued into place.

Capitalize on the hidden benefits of induction seal or with Bore seal

❖ **Allows full compliance with National Packaging Covenant**

Boss Closures

The requirements of the National Packaging Covenant can now be met by milk bottlers as the cap and bottle are fully recyclable be it with a primary bore seal or after foil removal.

❖ **Copes well with damaged necks**

- ❖ The bore seal closure has been proven to cope well with damaged and out of round necks as its patented design with a lower neck weight pulls the neck into conformance with the seal.

❖ **Cannot be over torqued in application**

- ❖ The cap application torques can be reduced with the bore seal and neck combination and with the neck captured within the closure does no allow the cap to be over torqued.

❖ **Carbon Efficient**

- ❖ Reduction in the amount of plastic required, an efficient, fast manufacturing process arising from the design of the neck and closure reduces power consumption, resin and ultimately a carbon reduction.

Boss Closures recommends the use of its Bore Seal and Neck Design to reduce the packaging cost, improve the manufacturing process and assist the environment.