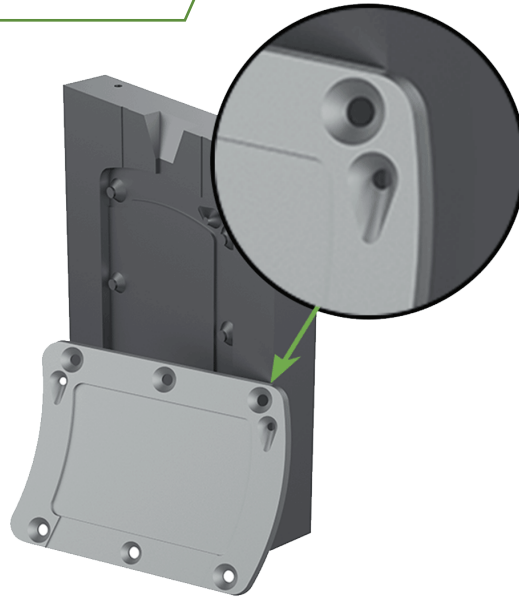




Guide Pad Design Technology



FPInnovations 

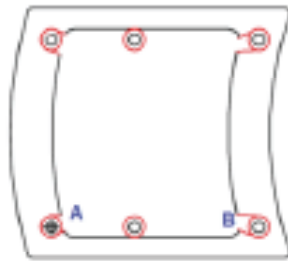
Guide Pad Experimental Study:

The objective of this project is to develop a guide design that ensures all guide bearing surfaces receive adequate lubrication, allowing for reduced cooling water or oil.

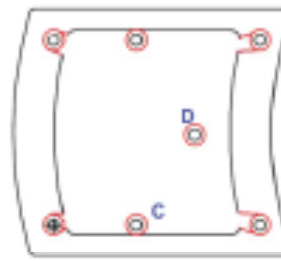
The approach is to develop a guide lubrication system that uses less water/oil while maintaining the conditions for good sawing performance.

An experimental study of comparing different guide pads and orifices' design led to following results;

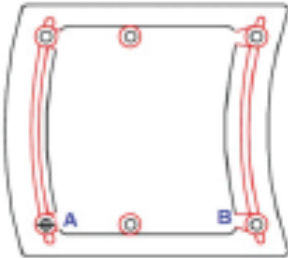




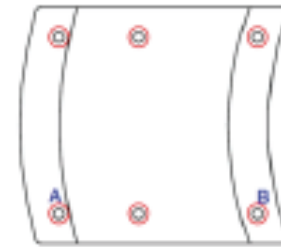
Original:
Water in lands



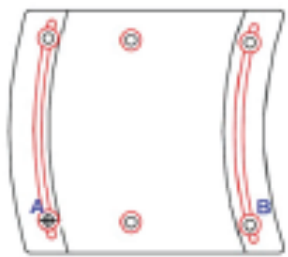
Original:
Water in pocket
(Less efficient than water in land)



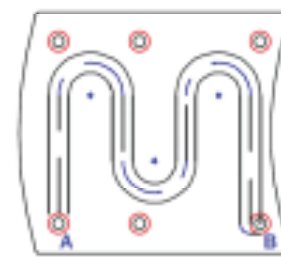
Original with narrow slots
lands and water in land
(Less efficient than non-slot)



Open Guide
(The most efficient of all)



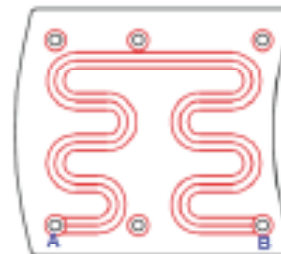
Open Guide with narrow slots
(Less efficient than non-slot)



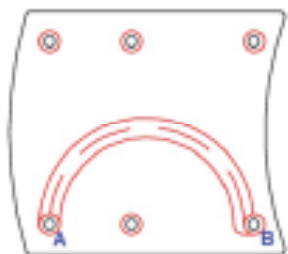
Camel
(Average effectiveness)



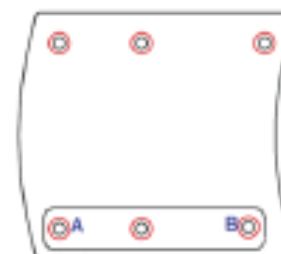
Snake
(Average efficiency)



Sea-Serpent
(Average efficiency)



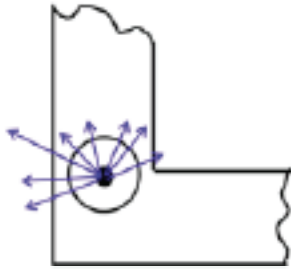
Semi-Circle
(The least efficient)



Bottom narrow pocket

A and B are lubricant ports





Water escapes easily into the pocket and from the pad (to the left)

-Increase oil waste

Closed Hole Orifice



Less water escapes from pad

-Reduce oil consumption

(More effective with open pads)

Closed Teardrop Orifice



Less water escapes from pad Flow into pocket helps to keep orifice clean of sawdust

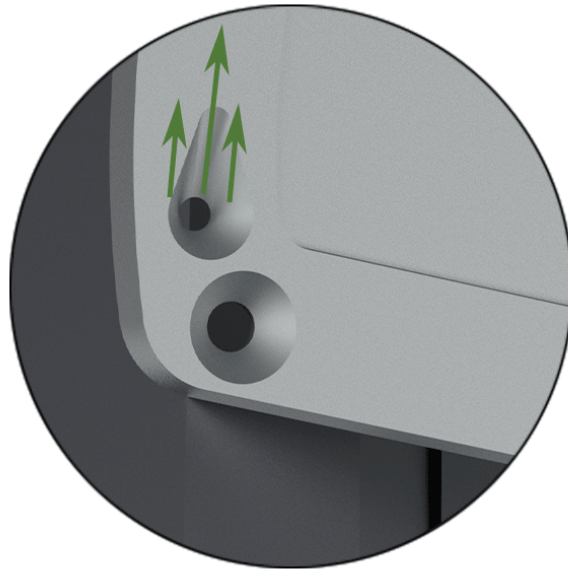
-Reduce oil consumption

-Reduce guide and saw wear

(More effective with pocket pads)

Open Teardrop Orifice





Keeps the water in tight contact with the saw. The lands on either side of the pad are arced to follow the direction the saw will pull the water

Conclusion

- Accumulated and circulated water inside the pocket does not flow radially to create a film between the lands and the blade. Water needs to get to the **corners of the pad** because that is where wear is usually seen.
- In an “Open Guide” (Design#4), with an orifice at the entry to the land, a consistent water film was maintained between the saw and the lands.
- In an “**Open Guide**” (Design#4), the **teardrop style port** helps spread the water film, as opposed to the water escaping through the side of the pad, and has **the most coverage** on both inside and outside lands. The teardrop port gets water onto the lands and **avoids radial leakage** out of the guide.
- The teardrop port can be used to reduce the temperature without using excessive amounts of water. It results in longer and more consistent **sawing quality**.

