

The Partial Tang Design

Initially I had a limited amount of CPM S110V to try out and wanted to make it go as far as possible. It takes several blades to work out heat treat options and do testing on different hardness. Later I was able to get more material but it is still in short supply and expensive. There now is another heat on the way based on the latest update from Niagara.

I did not invent this idea; I have seen it on custom knives in the past. In fact Wayne Goddard had used it years ago when he was making knives from planer blades and they were a little short for a full tang construction. Anyhow it does save material, makes the whole knife a little lighter, and now that I have done maybe 50 knives with this design I just like the looks and concept. It allows a contrasting spacer down the center and it is interesting to use different color combinations. Hunter orange can be used for example to make the knife more visible if it is misplaced in the sagebrush.

The question of strength comes up...That is a fair question. The partial tang is very strong in the down cutting direction. In fact you would have to break the epoxy bond and shear the pins to induce failure. This according to my strength of material calculations would be somewhere between 500 and 700 pounds down force. Not possible with the human hand. The side force against the blade to failure would be less and depends on the strength of the scale material. I always use Micarta or G10 here, and feel that is more than sufficient strength for this type of loading. In fact I think the blade would fail by bending or breaking before the Micarta would just due to the stress concentration at the plunge cut. So with this loading it is pretty much the same as a full tang or even hidden tang. I do not recommend prying or twisting on my knives so one should not see a problem with a side loading.

Partial tang or hidden tang construction then will be used for all the knives I make with CPM S110V and most of the A11 grades. I can make a full tang with most of the others and the Bird and Trout will continue to be made with CPM S110V or CPM S90V and the full tang.

A long answer to a short question but seem like it needed to be addressed.

Phil