

## PODCAST EPISODE TRANSCRIPTION

### Episode Summary:

In this episode Tom Bailey and Jim Jacoby (VP of Technology at Tri-Sen) discuss the types of metal used in hydraulic trip interfaces and why one type might be preferred over another.

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**Tom:** Hi and welcome to the Turbomachinery Controls Podcast where we will be informally discussing turbomachinery controls and turbine safety related questions and topics.

Opinions expressed here are our own and not necessarily those of Tri-Sen. I'm Tom and I'm with Jim Jacoby, Vice President of Technology here at Tri-Sen. In this episode, we'll be talking about hydraulic trip block metal. Specifically, why anybody would want to use stainless steel over aluminum, over carbon steel.

**Tom:** How come we have three variations of this [trip block metal]?

**Jim:** There is a bit of history that we need to explain in that.

This is primarily based on the API Market as typically looked for in the refining world. Fires were always an issue, [you] really don't want to feed a fire if one starts and the idea is that an aluminum housing, something that's containing a pressurized hydrocarbon, will melt if you're in a hot fire, and then you're feeding the fire with your oil in the system.

API customers have typically shied away from aluminum in a pressurized system like that. Now traditionally, the old mechanical governors that were on turbines were made out of aluminum – still are – but the pressure and quantity of oil in one of those governors is really low, so not much consequence there if you melt that. The hydraulics world uses aluminum a lot - they're not typically worried as much about fire, and a lot of the times if they are, they use a fluid that does not burn easily; a fire retardant fluid.

So, that's the aluminum issue. If you can't have aluminum, you want to use steel. Carbon steel would work but in a lube oil system, you worry about contamination of the oil with water coming from the steam seal near the bearing housings on the turbine.

If you have water in there, then you get rust and other things forming. So traditionally, API 614 requires stainless steel for all new oil system components, and basically our trip blocks at the end of the lube oil system, or control oil; but it is all the same oil. That is where the stainless steel comes from.

I think carbon steel for a service like this is probably not going to be something we see a lot of. We have not sold that many.

**Tom:** Some of the people that we compete with in the space, for lack of a better way of saying it, right, have options but they don't have stainless. I don't think they make a stainless version of this. I don't know if one of the German companies makes a stainless version of this or not, but certainly one of the companies in the US doesn't have one. What is their trip block made of?

**Jim:** It's aluminum. They have a lot of experience in casting aluminum for their governor products and that was a logical design for them because of the castability of it. You could cast 17-4 PH, that is castable, but gets pretty expensive. I don't know why they have stuck with that arrangement because, like I said, in our business, especially in the refineries and ethylene plants, you need a material that is corrosion-resistant. Aluminum would be okay but then you don't have that that integrity and in the event of a fire. I guess, maybe that's a calculated risk that a customer might take.

**Tom:** I think that answers the question. It clears it up for me anyway.

That is it for this episode. Drop us an email at [turbomachinerycontrols@tri-sen.com](mailto:turbomachinerycontrols@tri-sen.com). Let us know what you got on your mind. Thanks for listening and we'll see you next time.

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