

Pressure Measurements while Baking with the IGC100

To do pressure measurements with your IGC100 while baking out your vacuum system is one of those vacuum procedures the IGC100 excels at, following bake-outs and pump-downs. You can use our universal cable O100C3 with certain limitations and precautions.

The limitation with our O100C3 cable during bake-outs is not in the cable itself, but rather in the plastic/safety shield. That shield which protects the connectors (and you) is made of Delrin, is not bakeable and should not be heated above 100C under any circumstances. You can, however, move it back permanently or while you bake out. That exposes the connector cables to air and make the whole gauge bakeable to 125-150C.

We routinely bake our gauges at 150C while connected to cables, without seeing any problems. The cable can tolerate that, as long as you are not heating it directly.

There are some comments and precautions however:

1. No matter how heat resistant a cable is, its life is limited if the cable is heated. The cable becomes brittle with time. The problem is emphasized on the collector cable because there you are limited in your choice of materials. Keep an eye on this.
2. The contact surface between the flange and cable connectors tend to deteriorate when heated. This can become a problem (particularly for the collector current.) It is a good idea to wiggle the contacts every now and then. This is not peculiar to our cables, but is a well documented fact.
3. As long as you are running the gauge during bake-outs, the Vacuum Group at NIST recommends that you just wrap it with heat insulator (fiberglass and aluminum foil), and that, by itself, will provide enough heat to keep it clean, without the need for direct heating. Keep in mind that the internal gauge surfaces are kept clean by electron bombardment. and gettering from evaporated filament.
4. If you still want to wrap tape around the gauge, this is ok but don't wrap tape directly around the cable or conductors, and move the shield back and away from the flange. Leave the connection area open to air. As long as the temperature at the flange does not exceed 150 C, we do not anticipate any problems. We do this regularly at SRS.