Convection Oven for AdLIGO Parts Baking Vacuum Chamber

APPROVALS	DATE	REV	DCN NO.	BY	CHECK	DCC	DATE
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Intended Application

We intend to place an ~400 lb. stainless steel vacuum chamber having approximate dimensions of 30" diameter x 45" length inside of an insulated convection oven. The vacuum chamber is to have (2) pump ports (bolted/flanged tubes) connecting it to the exterior of the convection oven via sleeved holes, (1) thru a wall of the convection oven and (1) thru the ceiling of the convection oven. Access to the interior of the vacuum chamber is by way of a bolted door at one end of the chamber. Parts are loaded into the vacuum chamber and the vacuum chamber door then gets bolted closed. The chamber is then evacuated via external pumps. Next, the vacuum chamber is uniformally heated in a ramp/soak type cycle, i.e. the temperature setpoint "ramps" up to a "soak" value were it remains for an extended period. Following the heat soak, the temperature "ramps" back to ambient temperature. Each ramp segment may have a unique slope and each is to be programmable. The soak temperature and duration will also be programmable.

The apparatus will be located in a clean laboratory environment where people will be working for extended periods without hearing protection.

Required

- Minimum useable interior dimensions (wxdxh) of 35" x 47" x 35"
- Maximum exterior dimensions (wxdxh) of 72" x 84" x 96"
- All-metal particulate-free interior
- 480VAC 3 phase 60 Hz
- Door access from end
- Interior floor capable of supporting 500 lbs.
- Rise time to 225C within 4 hours
- Programmable Ramp/Soak temperature control
- Accommodate typical bake cycle of 0-225C in first 8 hours, soak at 225C for next 48hrs then ramp down to room temp in 12 hours
- Over-temperature shutdown protection with programmable setpoint
- External indication of internal temperature
- Noise level compliant with OSHA standards for continuously occupied room without hearing protection
- Capability of having (1) 6.5" diameter penetration located approximately 18" above floor of oven interior and no further than 15" from the inside of the door (exact locations to be determined).
- Capability of having (1) 6.5" diameter penetration thru ceiling no further than 15" from the inside of the door (exact locations to be determined).

Desired Options

- Provide (1) 6.5" diameter penetration located approximately 18" above floor of oven interior and no further than 15" from the inside of the door (exact locations to be determined). Penetration to be sleeved such that insulation prevented from entering useable interior of oven.
- Provide (1) 6.5" diameter penetrations thru ceiling no further than 15" from the inside of the door (exact locations to be determined). Penetration to be sleeved such that insulation prevented from entering useable interior of oven.
- Inlet duct to admit room air into interior of oven
- Outlet duct to exhaust oven interior air to room
- Stand to raise oven off of floor