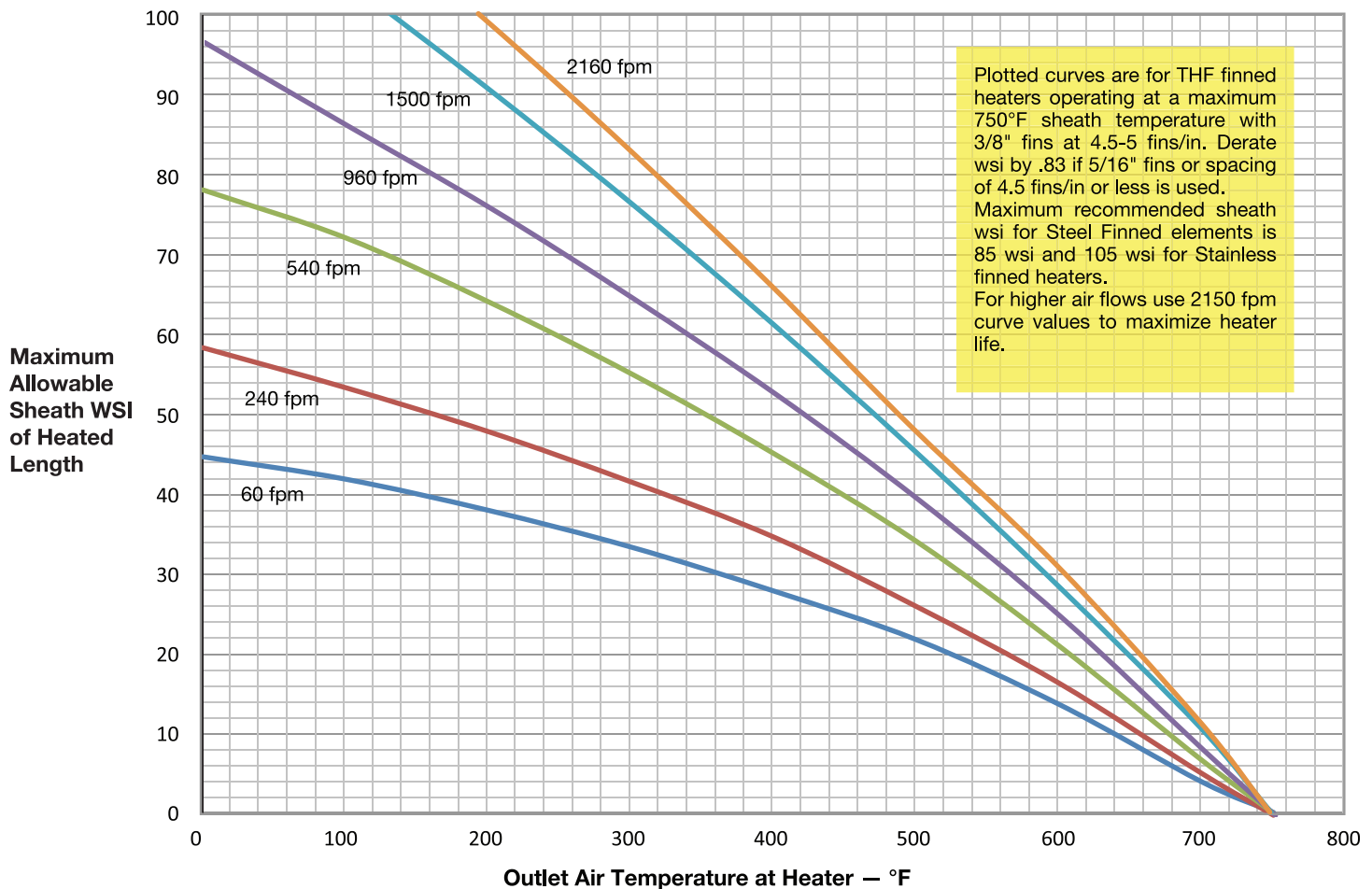


### Sheath Watt Density

The maximum sheath watt density to be specified is directly determined by the operating variables of FPM airflow velocity and inlet/outlet air/gas temperatures required. It must be selected such that sheath operating temperatures are not exceeded; 750°F for steel sheath-steel finned, or 1200°F for stainless steel/alloy sheath with stainless fins. Cataloged heaters are designed to operate within these parameters. The following charts will help guide the user in selecting proper watt density.

**Allowable Sheath Watts/Square Inch at Various Air Velocities for Steel or Stainless Steel Finned THF heaters**



**Chart 1 for steel (or SS) finned elements relates the maximum allowable sheath wsi to outlet air temperature that will be obtained at various air velocity levels.**

These curves are for 750°F (or lower) sheath operating temperature.

### The following Examples Illustrate the Graph's Use

#### Example 1

An application requires a heater to output 275°F air at an air velocity of 750 FPM. Entering the curves with 275°F, then up to 750 FPM level we find that a maximum of 62-64 wsi can be applied. Depending on voltage and space constraints either a .315 or .430 diameter catalog heater could be used.

#### Example 2

A curing oven needed 325°F outlet air at a minimum velocity of 1500 FPM. Entering chart at 325°F up to the 1500 FPM curve, we see that the heater could have a maximum of 70-72 sheath wsi. If a higher outlet air temperature is required, or if the airflow velocity is lower, then a reduced a sheath wsi would have to be specified.