The Ideal Tip

When choosing a tip, understanding its capabilities will be crucial to the quality of your soldering. Each tip has a specific purpose and has been formed for particular types of tasks. Temperature, tip size and tip shape must all work together to produce first-rate soldering for each application. When choosing your tip, you'll also need to consider the various conditions of the part to be soldered.

You can look at tip shapes as a whole, that is, bevel, chisel, conical, knife, pyramid, quad, round, etc., however companies like Hakko consider the very detailed aspects of certain applications when manufacturing tips. A basic tip shape will be machined and hewn into hundreds of shapes and sizes to fit all kinds of precision work.

How do you choose from hundreds?

Hakko provides detailed instruction for choosing an ideal tip depending on your choice of **shape, operation and series.** You can also perform a "series" search on the Hisco website. Hisco carries 366 Hakko tips and you can easily reduce your tip choices. For instance, if you choose to start with a series, such as T15, you'll be able to hone down what you specifically need by then selecting your tip shape, size, length and angle. You can also choose to start with "angle," such as 45° and you'll be presented with all of the available 45° tips.

Size Means Everything

Just like the story of "Goldilocks and the Three Bears," there's a tip that's "just right."

Too small - a tip that's too small will not efficiently transfer enough heat to wet the solder.

Too large – a tip that's too large can cause damage to the workpiece.

Just right – a tip that's just right will transfer a sufficient amount of heat and may reduce working time if the soldering iron has good thermal recovery rate.

Heat Storage Capacity

Just a small change in tip size can make enough of a difference in quality soldering to make testing different sizes worth your time. The temperature of the tip and the amount of time it takes to wet the solder will also affect your decisions.

A tip's heat storage capacity is very important to producing a good soldering environment. The tip ends can be the same size, like the Hakko T12-D12 and the T12-DL12, however you'll notice one of the tips appears to be larger and will produce a different heat storage capacity. By examining the time and temperatures of potential tip choices you can improve the results. How long did it take for one tip to come back up to temperature compared to a similar one? A tip that reduces soldering time (less wear on the tip) will also reduce oxidation.

One Thing Leads to Another - IF/THEN

If the goal is to choose the best tip for the application, then follow these steps and you'll be on your way. Begin with determining the most efficient diameter of your tip.

1. IF you choose the right diameter,
   THEN efficient heat will be transferred to the workpiece and result in easy wetting by solder

2. IF solder wetting is easy,
   THEN you'll be able to set your soldering iron to the lowest temperature

3. IF the temperature can be kept low,
   THEN you can avoid tip oxidation

4. IF tip oxidation is avoided,
   THEN the life of the tip will be extended and costs reduced

You can enjoy knowing that generally speaking, if there's an application that needs a specific kind of tip, then it's most likely been manufactured.