



# Apollo Seiko

## Iron Tip Price / Value Comparison

Below is a chart that compares pricing vs. performance between Metcal brand tips and the Apollo Seiko TM iron tips. The number of cycles has been determined during our tests based upon a run of 1000 PC Boards (details below).

**Disclaimer:** *Prior to the release of the patented TM iron tip, Apollo Seiko was integrating Metcal tips with our robots. The main reason for the development of the TM tips was to achieve a longer life to reduce the frequency of tip replacement. In a robotic environment, the less frequent the iron tips require changing the more productive the robot.*

Below is a table that compares the per tip cost for both suppliers along with the average lifetime of a solder tip. The following statistics are based upon our experience in using both the Apollo TM tips & Metcal RF tips (700 Degree Fahrenheit type tip).

Iron Tip Vendor	Cost / Tip	Tip Life @ 300 Deg. C.	Avg. Cost Per Solder Joint	Price Delta per Joint
Apollo Seiko	\$ 88.00	~ 60,000 cycles	\$ 0.0014667	(+) 0.0012833
Metcal	\$ 22.00	~ 8,000 cycles	\$ 0.00275	(-) 0.0012833

The example above is based upon head to head comparisons with an identical application. The application details are as follows:

<b>PCB Thickness:</b>	0.062"	<b>Through Hole:</b>	Plated Top Side
<b>Lead Above PCB:</b>	0.040"	<b>Lead Diameter:</b>	0.025"
<b>Temperature:</b>	300 Degrees Celsius	<b>Flux:</b>	# 245, No-Clean (Kester)
<b>Solder Diameter:</b>	0.025" (0.65 mm)	<b>Flux Percentage:</b>	3.3% (Core 66)
<b>Joints per PCB:</b>	10	<b>Joint Type:</b>	IPC Class II

**Annual Tip Cost Totals:** Based upon the test data the totals are as follows:

PC Boards per Day	500
Joints per PC Board	10
Days per Year	250
Joints per Year	1,250,000

Iron Tip Vendor	Cost Per Tip	# Tips Required	Total Annualized Costs
Apollo Seiko	\$ 88.00	20.83	\$ 1,833.04
Metcal	\$ 22.00	156.25	\$ 3,437.50