FINWORKS 150

CALIFORNIA COMPLIANCY

STAN PICKENS METALLOID CORP

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STAN PICKENS

NEW FINLINE

A company purchased a new fin line, complete with two dies, from a large equipment manufacturer for use at their Madera, California facility. This equipment was developed with an evaporative fin stamping lubricant as this was their company standard. California regulations prohibited the use of this lubricant because of the VOC content. They reached out to us for assistance. We recommended our Finworks 150. This is a proven fluid that would allow the finline to form the required collar height and meet the restrictions they are working under at their location. (Restrictions can differ depending on what part of California in which one is operating.)

We also offered our services on-site to help with adjustment of the amount of lubricant being applied. A non-evaporative must be applied at a greatly reduced rate compared to an evaporative lubricant. One must remember that whatever amount is applied to the fin that amount will remain on the finished fin. This group of lubricants is designed with this in mind and requires some type of application system that will meter the lubricant onto the material at a controlled and reduced amount compared to an evaporative lubricant.

DEPOSITION WEIGHT

Providing a starting point requires the determination of the amount of the lubricant being applied to the fin stock material. This can be done by calculating the amount left on the fin as it exits the fin die at the cut-off assembly. To do this accurately we use a scientific scale that will read in milligrams out to four places and an Excel spread sheet to complete the calculations. As this was a start-up of a Coil Fabrication Department in an existing facility, we were able to collect the desired fins directly from the finline and immediately weigh the fin, collect the data, and enter into the spread sheet. We collected twelve 6-row fin that were 6-holes long. This information, along with the row width, hole spacing, and punch diameter is plugged into the spread sheet. Each fin is weighed, and that weight is recorded as the lubed weight. Then each fin is cleaned with acetone and dried with hot air. The fin is weighed a second time, and this weight is recorded as the cleaned weight. The spread sheet will calculate the difference, average difference, the total coating weight in mg/sqft, and the coating weight per side again in mg/sqft of material. With the information supplied by the spread sheet we were able to reduce the amount being applied by 2/3rds and still have confidence that the fin die and associated tooling was fully protected.

KEY FINDINGS





KEY FINDINGS #1

Initial set up of the fin stock lubricating applicator was completed at the OEM and done with an evaporative lubricant.



KEY FINDINGS #2

The amount being applied was excessive for a non-evaporative lubricant and the finished fins were overly wet allowing them to drip lubricant onto the floor



KEY FINDINGS #3

Using the Scientific scale we were able to confidently reduce the amount of lubricant being applied by 66%. Eliminate the wet and dripping fins and protect the tooling. This is an annual estimated savings of \$36,000.00 per year all while providing superior tooling protection.



SPREAD SHEET

COATING WEIGHT DATA and calculations

E	Enter Fin Des	cription									
Row Width		1.364									
Number of Rows		6									
Number of Holes Long		6									
Hole Spacing		1.750									
Punch Diameter		0.540									
Area of Slug		0.2290									
							Beginning	Ending	Total Oil,	Total Area,	Coating Weight,
Date	Machine			Length	Width	# of Holes	Weight	Weight	mg	sq ft	mg/sq ft
									L		
		Lubricant ID		10.5	8.1840	36	46.8361	46.6887	147.4083	1.0790	136.6
										Per Side	68.3
		Lubric	ant ID	10.5	8.1840	36	#DIV/0!	#DIV/0!	#DIV/0!	1.0790	#DIV/0!
										Per Side	#DIV/0!
		Data from Fin Press running FW-150				Data from Fin Press running FW-XXXX					
	Machine	Fin	Wts		Ave Diff	Machine Fin Wts				Ave Diff	
		Lubed	Cleaned	Diff	0.1474			Lubed	Cleaned	Diff	0.0000
		46.5639	46.4104	0.1535						0.0000	
		46.4889	46.3492	0.1397						0.0000	
		46.4620	46.3211	0.1409						0.0000	
		47.2457	47.0885	0.1572						0.0000	
		47.1340	46.9959	0.1381						0.0000	
		47.0716	46.9423	0.1293						0.0000	
		47.0047	46.8236	0.1811						0.0000	
		46.3416	46.2071	0.1345						0.0000	
		46.9991	46.8211	0.1780						0.0000	
		46.9225	46.7839	0.1386						0.0000	
		46.9403	46.8026	0.1377						0.0000	
		46.8594	46.7191	0.1403						0.0000	
				0.0000						0.0000	
				0.0000						0.0000	
				0.0000						0.0000	
				0.0000						0.0000	
				0.0000						0.0000	
				0.0000						0.0000	
				0.0000						0.0000	
				0.0000						0.0000	
		46.8361	46.6887	0.1474	Average			#DIV/0!	#DIV/0!	0.0000	Average

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CONCLUSION

Finworks 150 is an excellent choice for any customer wishing, or required, to use a low VOC product when stamping fin for a heat exchanger. It provides excellent lubrication to form a collar height up to 0.250" tall and provides the necessary tooling protection at a reduced level of application

TAKEAWAY #1

Finworks 150 is an excellent replacement for an evaporative lubricant as long as the customer has a lubricant applicator that will meter the amount being applied to the fin stock.

TAKEAWAY #2

Finworks 150 can be expected to form any collar height ranging from a height of .04 to .250 inches. It will do this at an application rate of 30 milligram per side or less.

TAKEAWAY #3

Finworks 150 is an excellent choice for any coil fabrication shop that is using a metered application system. Switching from an evaporative lubricant to FW-150 should result in a large reduction of the amount of fin stock lubricant used, in this case 66%. Any dripping of excess lubricant from the fin can be, if not eliminated, greatly reduced.