Roy Metal Finishing: A Different Drive

The company drives itself to improve and grow, keeping pace with automotive industry requirements...

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Roy Metal Finishing Company
Conestee, South Carolina

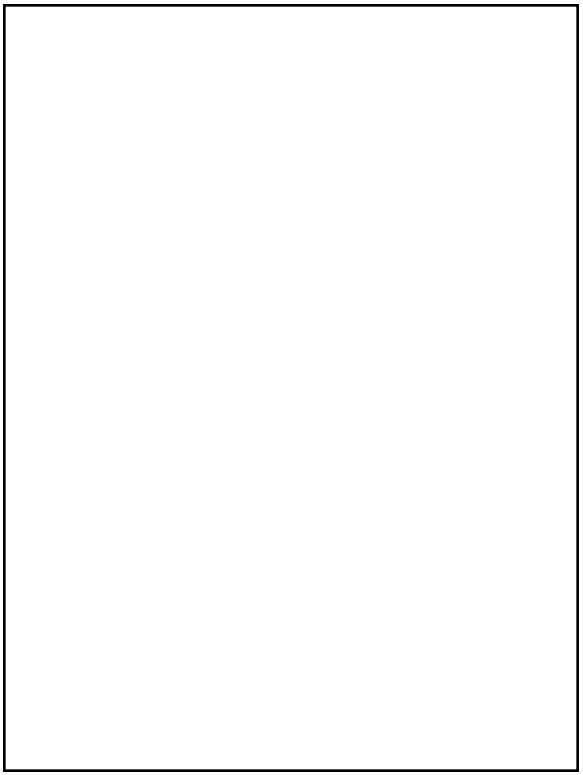
When Donald and Cecile Roy began Roy Metal Finishing (RMF) more than three decades ago, their dream was to establish a successful plating company dedicated to superior quality and attentive customer service. They did just that.

Today, RMF is approaching its 35th year with more than 40 employees, a 49,000-sq-ft facility and many satisfied customers throughout the Southeast. These factors are quite a contrast from those of the beginning: three employees, 1,200-sq-ft facility and one satisfied customer.

Although many changes have occurred at RMF throughout the years, one fact has remained constant, superior quality and attentive customer service. This objective is maintained today with the second generation leadership of President Clifford Roy.

RMF first provided hard chromium plating on parts for the textile industry. As years passed, the company survived by doing any plating job, thus requiring management to diversify into cadmium, zinc, copper, brass, nickel chromium plating and polishing.

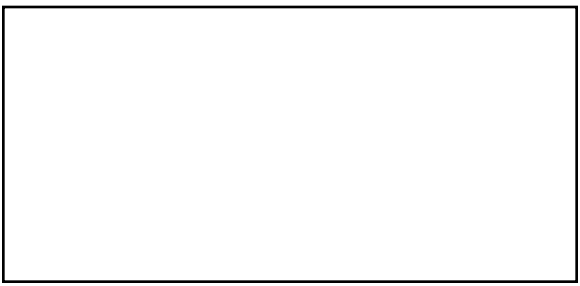
The diversity did not last long, however. With the "help" of the Clean Water Act in the 70's, RMF decided to eliminate all cyanides, therefore reducing the company's finishes to zinc, zinc phosphate, nickel and nickel chromium. In 1976, a complete waste treatment system was designed and installed to meet all federal and state regulations. As such regulations became more strict, RMF also eliminated hard chromium plat-



ONE OF FIVE automatic zinc barrel plating lines at RMF

ing. RMF chose to concentrate on high-volume zinc chloride plating, and chose Frederick Gumm Chemical Company as its zinc supplier.

The new focus expanded the company's plating diversification. It engineers plating using zinc on steel with clear, iridescent or olive drab chromates from MacDermid, or black chromates from Gumm. At this point, no job was too small. RMF stopped plating zinc for simple coverage and began giving customers zinc-plated parts engineered to their specifications.



ROY METAL FINISHING's headquarters in Conestee, South Carolina

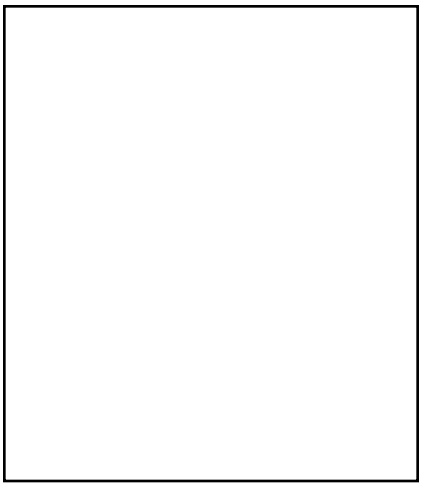
FOCUS: Automotive Plating

In the 1980's, the American automotive industry began to take a beating at the hands of foreign competition. RMF saw this coming and took measures to protect the company. Because plating specifications would become more stringent, RMF made large investments in bigger machines that were able to plate thicker deposits while maintaining high production.

The old Udylite VIP machines were scrapped and Jessup barrel zinc and barrel zinc-phosphate machines were purchased. The machines' programmed hoists provided the versatility needed for changing plating requirements. In addition to improving the design of its machines, the company also updated its laboratory, which allowed for monitoring the plating line through SPC data.

Customers also benefited from the addition of thickness measuring devices, automatic pH controllers, amp/hr brightener feeders, chromate feeders, constant voltage/amp rectifiers, plating bath filters, recirculating pumps in rinse tanks, digital scales for loading, automatic soak and electrocleaner controls as well as an atmospheric evaporator.

Plating certifications are typical requirements of the automotive industry today. To meet these requirements, several eddy current thickness instruments are used to measure thickness near the production lines. The most recent purchase was an x-ray fluorescence machine from CMI International that gives the most accurate readings. In addition, a salt spray cabinet is used to ensure that plated parts meet the standards currently required by all automotive and industrial accounts. It is no longer acceptable to have 48 and 96 hrs to red corrosion. Parts plated at RMF survive 146 and 250 hrs salt spray to red rust because of topcoats applied over the zinc plate.



CLIFFORD ROY conducts a production meeting to keep employees up-to-date.

The vast improvements of the 1980's and early 1990's have led RMF to many successful undertakings. Today, the company builds its own rack and barrel machines. It has five automatic barrel plating lines and three automatic rack lines. These lines enable the company to meet the 24-hr turnaround demanded by many of its customers.

The research and development department has also developed its own pilot lines for zinc-iron and tin-zinc alloy finishes, designed to increase corrosion protection in excess of 250

TABLE I—Operational Sequence at RMF

Operations	Primary Controls	Secondary Controls
Visual Inspection of incoming customer parts	Receiving department	
Work orders	Computer generation	
Scheduling reports	Computer generation	Production manager
Barrel zinc plating		
Load size	Digital scales	
Cleaners-liquid concentrates	Automatic conductivity controls	Sanda thermometric analysis
Rinses	Overflow rinses from acid rinses	
Hydrochloric acid	Titration biweekly	Sanda thermometric analysis
Rinses	Overflow from plating rinses	
Plating acid chloride zinc	Daily metal & chloride titrations	Sanda thermometric analysis
	Automatic pH controls	Daily lab check
	Filtration	Daily review
	Recirculating pumps	Daily review
	Temperature control	Daily review
	Amp hour metering of all primary & secondary brighteners	Daily Hull cell
	Evaporators	Daily review
	Rectification constant voltage	
Counterflow rinse	City or well water	Daily review
Chromating	Automatic chromate feeders	Daily lab checks
Counterflow rinses	City or well water	Daily review
Topcoats	Daily lab analysis	
Spin dry		
Plating thickness checks each load	CMI eddy current	CMI X-ray fluorescence
Inspection area	Quality control department Documentation and certifications	
Shipping	Computer generation	

TABLE II—Barrel Zinc Plating Sequence

Step	Temp., Time	Supplier	Product Used
Load			
Soak Cleaner	160F, 3.5 min.	Gumm Chemical Co., Inc.	Clepo 481-AP Liquid, Conc. 10 pct
Electrocleaner	160F, 3.5 min.	Gumm Chemical Co., Inc.	Clepo 481-AP Liquid, Conc. 10 pct
Rinse	1-2 min.		
Rinse	1-2 min.		
25 pct Hydrochloric Acid	100F, 5 min.	Gumm Chemical Co., Inc.	Clepo Mur Plus Pickle Aid 3 pct
Rinse	1-2 min.		
Rinse	1-2 min.		
Zinc Plate	Less than 110F, Variable Time	Gumm Chemical Co., Inc.	Du-Zinc 19 High Temperature Acid Chloride Brightener System
Rinse	1 min.		
Rinse	1-2 min.		
Rinse	4-5 min.		
Trivalent Clear Chromate	Room Temp., Var. Time	Gumm Chemical Co., Inc.	Clepo TC-3
Hexavalent Yellow Chromate	Room Temp., Var. Time	MacDermid Inc.	Macro Brite L-7
Olive Drab	Room Temp., Var. Time	MacDermid Inc.	Iridite No. 2
Rinse	1 min.		
Rinse	1 min.		
Unload			
Spin Dry			
Optional Black Chromate Wax, Leach	Room Temp., Var. Time	Dipsol Gumm Ventures.	Silver Black Chromate ZB-544
Spin Dry			

salt spray hrs. As it grows, the company will have the technical knowledge available for the development of new production lines.

Through a tightly controlled environment, RMF can give the automotive industry the quality it needs. But the staff makes all the difference. All staff members have been carefully trained and each production supervisor has at least 12 years of in-house experience. Several employees, including one supervisor, have more than 18 years of service with the company. The staff works hard to satisfy the customer, including daily communication concerning their jobs.

To keep RMF in the running as an industry leader, it takes a different drive. With its modern plant facilities, advanced plating machines, great people and the flexibility to diversify for the next century, Roy Metal Finishing exceeds and excels. **PF**

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