









		<h1>Process Flow Chart</h1>		Project Engineer / Responsabile progetto:	
Product / Prodotto		KTL			
Customer / Cliente				Item Code / Codice articolo	
Customer Code / Codice Cliente				Drawing No./ Disegno N°	
Customer drawing No./ Disegno cliente N°:		//	Index / Indice rev	//	Item version / Versione :
1. Issue / emissione data:		Performed by/ Effettuato da:		Feci G. - Moretti M. - Boschetti P.	
1. Change date / data modifica:		Change/ Revisione N°:		Performed by/ Eseguito da: Moretti M.	

<u>Changeover Key</u>		<u>Inspection Key</u>	
P= product / Prodotto	T= tooling / attrezzature-impianti	A= automatic	M= manual
S= software / programma		V= visual	Q= quality audit
L= label / identificazione		T= Internal Lab	

working phase	Symbol Instructions							Changeover	Process operation description / descrizione dell'attività	KPC / SC [®]	Characteristic description / descrizione delle caratteristiche (Outputs)	KPC / SC [®]	Significant Process Characteristics / caratteristiche significative di processo
		work	move	Store/Get	control	re-work	Scrap/Contain						
													
1									materials unloading from truck				
2									delivery documents check and visual control on the batch		correct identification with label / aesthetic appearance NO oxidation - dents - scratches - bad welding zones		the internal Operative Instruction will be followed by the controller
3									internal identification label print		date of receiving / threatment / Customer / internal bar-code		

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4												storage of the accepted material																	
5												pick up of the pieces in store and pick up of the specific's hanging frames		EMMEGI working schedule															
7												100% visual and aesthetic control during hanging pieces on frame		100% visual inspection , visual appearance to detect presence of oxidations - dents - scratches oil and grease on the surface		Visual aids for visual inspection available to the line manager and available at the control point REMARK Quality agreement with Customer needed for welding and oil/grease on the surface													
8												set up proper working cicle on line PLC		working cicle n° on PLC Line		approved machining cycle stored on line PLC													
9												chemical pre-degreasing		respect of acid concentrations in the bath		concentration measurement according to specific I.O. and at each bath restoration													
10												chemical de greasing		respect of acid concentrations of the bath		concentration measurement according to specific I.O. and at each bath restoration													

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11									washing		bath must be clean to allow proper washing		Visual check of the tank status with complete change every month
12									chemical pickling		respect of acid concentrations in the bath, sulfuric acid concentration, temperature of the bath		concentration measurement according to specific I.O. and at each bath restoration
13									washing		bath must be clean to allow proper washing		Visual check of the tank status with complete change every month
14									ultrasonic pickling		respect of acid concentrations in the bath		concentration measurement according to specific I.O. and at each bath restoration
15									washing		bath must be clean to allow proper washing		Visual check of the tank status with complete change every month
16									washing		bath must be clean to allow proper washing		Visual check of the tank status with complete change every month
17									transfer tank		//		//
18									chemical activation		surface preparation to allow evenly phosphating over the entire surface of the workpiece		pH control with ph-meter frequency

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19												phosphating		maintain the equilibrium of the concentrations of the various chemical products inside the tank		control free acidity , total acidity and gas points with I.O. specific to the processing cycle
20												washing		bath must be clean to allow proper washing		Visual check of the tank status with complete change every month
21												demineralized washing		bath must be clean to allow proper washing		Visual check of the tank status with complete change every month
22												cataphoresis		maintain the concentration of the paste and resin in relation to the specification		Dry residue check and pH check. Once per month external laboratory control of the whole solution in the tank
23												ultra filtration 1		correct setting of pump and filter to properly separate paint from water		check the correct functioning of the filtering part check the values of microsiemens detected by continuous bath/tank control
24												ultra filtration 2		correct setting of pump and filter to properly separate paint from water		check the correct functioning of the filtering part check the values of microsiemens detected by continuous bath/tank control
25												oven drying		temperature and stationing time in the oven		T and t parameters set on the specific machining cycle within the PLC

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26												pieces load off from oven		pieces should be well dried		visual check on pieces
27												control pieces		Varnish thickness on piece surface . Absence of halos - spots , absence of dents - scratches and areas not properly covered by Varnish.		specific features and control features written on specific I.O. Visual aids and pictures to lead the control
28												packing and labelling		see I.O. packaging instructions VERIFY IF NECESSARY TO PROTECT THE PAINTED FRAME		
29												storage and ready to delivery				