



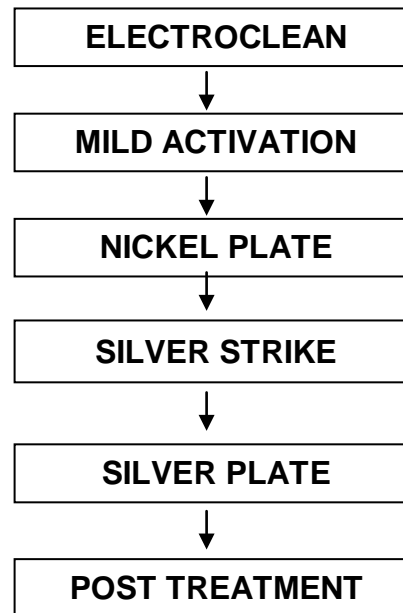
PROCESS APPLICATION GUIDE

REEL-TO-REEL CONNECTOR SILVER PLATING

PLEASE NOTE: This document is for guidance only.
Please refer to the appropriate Technical Data Sheet for additional information.

Rev 1215

Process Flow



REEL-TO-REEL CONNECTOR SILVER PLATING - RECOMMENDED PROCESS SEQUENCE

Process Step	Recommended Process	Description	Process Makeup	Temp	Current Density	Dwell Time	Recommended Control and Replenishment Schedule	Comments
Electroclean	Technic TEC 1016	Electrolytic cleaner	Technic TEC 1016: 15 – 45 g/l DI water: balance	60-71°C	Steel, copper, brass: 6-9v anodic Non-ferrous metals 4-6v cathodic	5-20 sec	Renew solution when contaminated	Alkaline low foaming; chelated. Rapidly removes oils, grease, and other contaminants
Mild Activation	Techni ACT 9600	Mild descaler	ACT 9600: Cu alloys: 50 g/l Alloy 42: 150 g/l DI Water: balance	18-29°C	NA	20-60 sec	Replenish based on analysis	Acidic, non- foaming, mildly aggressive. Etch rate(1-3 μ-in/min). Effectively removes oxides & heat scale
Nickel Plate	High Speed Nickel Sulfamate FFP OR	High speed nickel sulfamate plating process	Ni sulfamate Conc (150 g/l Ni): 600 ml/l Nickel Bromide 40 ml/l OR Nickel Chloride Conc.: 20 ml/l Boric Acid : 40 g/l High Speed Nickel Sulfamate Makeup Brightener: 10 ml/l HN-5 Wetting Agent: 2 ml/l	50-60°C	4-40 ASD	Dependent on thickness requirement	Maintain all components by analysis; Replenish HN-5 wetter by drag-out	High speed Nickel sulfamate plating process producing low stress, ductile Nickel deposits

Process Step	Recommended Process	Description	Process Makeup	Temp	Current Density	Dwell Time	Recommended Control and Replenishment Schedule	Comments
	Goldeneye Nickel	High speed proprietary nickel plating process	Goldeneye Nickel Conc: 300 ml/l Goldeneye Makeup Solution: 550 ml/l Boric acid: 50 g/l Goldeneye Nickel Stress Reducer: 20 ml/l HN-5: 5 ml/l DI water: Balance	60-65°C	5-30 ASD	Dependent on thickness requirement ~3µm/min @ 15 ASD	Replenish based on analysis	A low stress/highly corrosion resistant process which exhibits superior thickness distribution, higher line speeds/yields and lower waste treatment costs.
Silver Strike	Techni Silver Strike LFC	Low free cyanide silver strike process	Potassium Cyanide: 20 g Potassium Carbonate: 10 g Silver metal as Potassium Silver Cyanide (54.2%/Ag): 3 g Techni Silver Strike LFC Additive: 50 ml Deionized (DI) water: Balance	24-32°C	1-3 ASD	Dependent on application	N/A	Recommended strike process for use over nickel plated substrates to insure satisfactory adhesion of the final silver deposit
Silver Plate	Techni Silver 1050 OR	Medium speed matte to semi-bright, ductile silver plating process	Silver metal concentration: 65-100 g/l Free Potassium Cyanide: 75-90 g/l 1050 B Brightener: 30-50 ml/l 1050 A Additive: 0-5 ml/l	25-55°C	Dependent on application and bath conditions	Dependent on application	Replenish 0.8 ml/l 1050 B Brightener Replenish 1050 A Additive only as required	Conventional high free cyanide silver plating process. Utilizes stable silver anodes.
	Techni Silver HCD OR	Medium to high speed silver plating process, produces matte to bright deposits	Silver Metal: 40-70 g/l Free Potassium Cyanide: 3.75 g/l HCD Conducting Salts: 60 g/l HCD Brightener: 2.1 ml/l HCD Wetting Agent: 0.53 ml/l	35-55°C	5-25 ASD	Dependent on application	Replenish based on analysis	Silver plating solution designed to operate at very low concentrations of free cyanide. For use with inert anodes only.
	Durasil® Silver	High speed silver alloy plating process	Potassium Cyanide: 190 g/l Potassium Carbonate: 15 g/l Potassium Silver Cyanide: 68 g/l Durasil® Silver Additive: 125 ml/l Durasil® Silver Brightener: 10 ml/l Durasil® Primary: 5 ml/l DI water: balance	52-57°C	7.5-15 ASD	Dependent on application	Replenish based on analysis and Hull cell	Silver alloy deposit provides excellent contact and wear resistance when used in combination with Durasil® Post-treatment. Good tarnish resistance in severe corrosive environments (MFG).

Process Step	Recommended Process	Description	Process Makeup	Temp	Current Density	Dwell Time	Recommended Control and Replenishment Schedule	Comments
Post-treatment	Tarniban® KS II	Process to protect silver surfaces from oxidation/tarnishing	Tarniban® KS II Concentrate: 100 ml/l DI water: balance	43-49°C DO NOT EXCEED 60°C	N/A	3-30 sec	Replenish based on analysis	Forms a thin, colorless, transparent film on the silver surface which provides resistance to corrosion. Aqueous solution. May be applied by immersion or anodically.
	OR							
	Techniseal	Electrolytic post-treatment process	Techniseal Concentrate: 300 ml/l Deionized (DI) water: 700 ml/l	25–45°C	7.5 – 10 ASD	10 – 30 seconds	Replenish based on UV/VIS Analysis	Electrolytic post-treatment process that provides a transparent, nano-scale protective coating on silver deposits. Improves corrosion resistance and minimizes appearance degradation.
	OR							
	Durasil® Post Treatment	Silver Post treatment	Use as is	21-32°C	N/A	10-30 sec	Replenish based on analysis. Replace drag-out losses.	A non-aqueous process which provides improved corrosion and wear resistance.

Rev 1215