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QUALITY ASSURANCE PLAN FOR BARE COPPER

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1.0 ORGANISATION CHART OF QUALITY CONTROL

Organizational Chart of quality control is as given below,

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Qualification of key personnel and the officials deployed in Quality Control Cell

[illegible]

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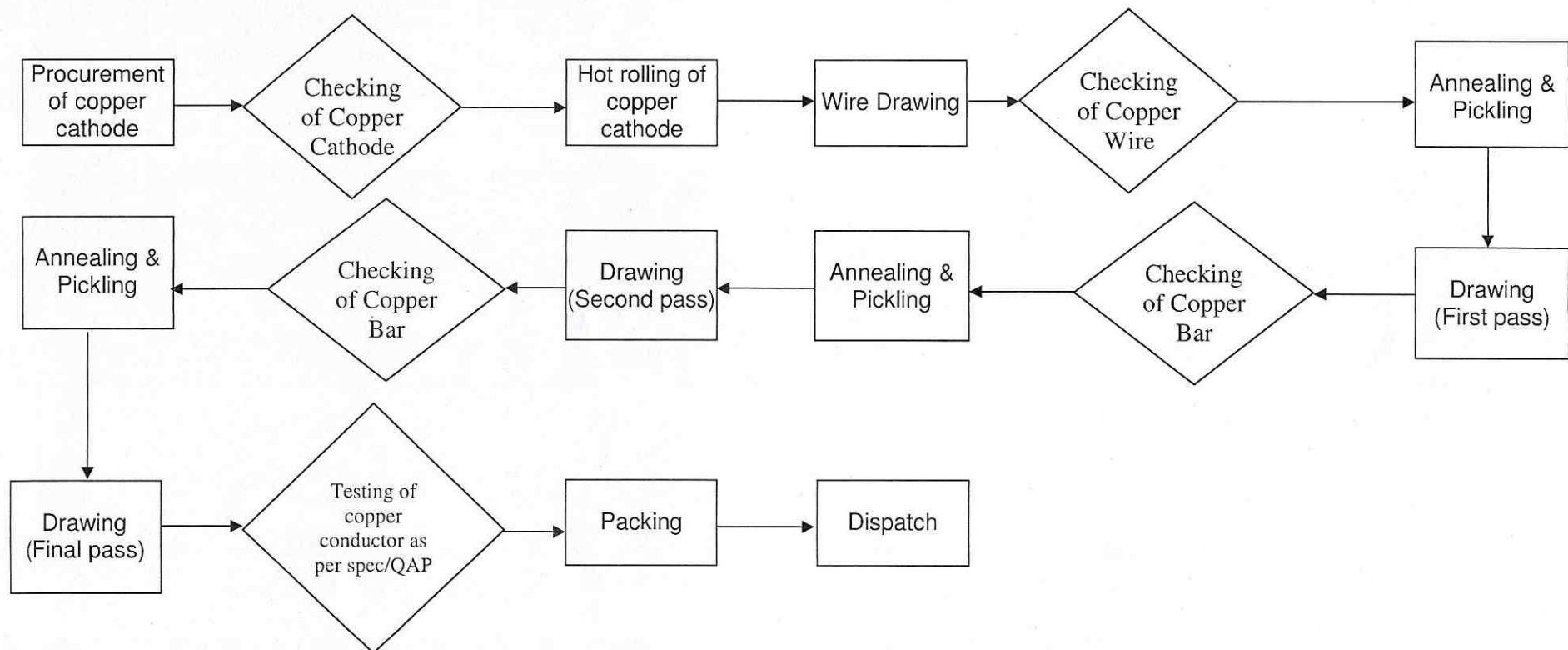
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4.0 PROCESS FLOW CHART OF MANUFACTURING PROCESS:



❖ Above process is indicative only, supplier to submit actual process being followed.

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5.0 INCOMING RAW MATERIALS

Sl. No.	Incoming Materials / Parts / Sub-assemblies	Name of the sources	Sample Size & Frequency of Inspection	Parameters for Inspection	Mode of Inspection / Equipment used	Acceptance Limits / Criteria / Specified value	Rejection Details/ Reprocessed/ scraped
1.	Copper Cathode / Copper wire	To be submitted.	One sample per Lot	Chemical Analysis (Spectro meter)	Chemical Analyzer	Relevant BHEL specification of bare copper mentioned in PO	Record
				Oxygen content	Chemical Analyzer/ Leco-analyzer	Relevant BHEL specification of bare copper mentioned in PO	Record

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6.0 IN-PROCESS INSPECTION (OF THE PRODUCT)

Sl. No.	Subject / Product / Process	Sample Size & Frequency of Inspection	Parameters for Inspection	Mode of Inspection / Equipment used	Acceptance Limits / Criteria / Specified value	Rejection Details/ Reprocessed /scraped	Traceability register no.
1	Checking of Copper Wire	One sample upto 3000 Kg	Dimensions (Width & Thickness)	Micrometer	-	Record	Record
			Tensile Strength & Elongation	Tensile testing machine	-	Record	Record
			Hardness	Hardness tester	-	Record	Record
			Conductivity / Resistivity	Conductivity meter/ Resistivity Meter	-	Record	Record
2	Checking of Copper Bar (after first pass)	One sample upto 3000 Kg	Dimensions (Width & Thickness)	Micrometer	-	Record	Record
			Tensile Strength & Elongation	Tensile testing machine	-	Record	Record
			Hardness	Hardness tester	-	Record	Record
			Conductivity / Resistivity	Conductivity meter/ Resistivity Meter	-	Record	Record

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Sl. No.	Subject / Product / Process	Sample Size & Frequency of Inspection	Parameters for Inspection	Mode of Inspection / Equipment used	Acceptance Limits / Criteria / Specified value	Rejection Details/ Reprocessed /scraped	Traceability register no.
3	Checking of Copper Bar (after second pass)	One sample upto 3000 Kg	Dimensions (Width & Thickness)	Micrometer	-	Record	Record
			Tensile Strength & Elongation	Tensile testing machine	-	Record	Record
			Hardness	Hardness tester	-	Record	Record
			Conductivity / Resistivity	Conductivity meter/ Resistivity Meter	-	Record	Record
4	Annealing	Each cycle	Temperature	Temperature indicator	-	Record	Record
			Time	Stop Watch/clock	-	Record	Record
5	Pickling	Each cycle	Cleanliness, Smoothness, brightness and free from defects	Visual	-	Record	Record

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7.0 FINAL INSPECTION OF THE PRODUCT

Sl. No.	Subject / Product / Process	Sample Size & Frequency of Inspection	Parameters for Inspection (as applicable)	Mode of Inspection / Equipment used	Acceptance Limits / Criteria / Specified value	Rejection Details/ Reprocessed /scraped	Traceability register no.
1	Chemical	One sample upto 3000 Kg	Chemical Analysis (% of Copper & Silver, Bismuth, Lead and other impurities excluding silver and Oxygen)	Chemical Analyzer (Spectrometer)	Relevant BHEL specification of bare copper mentioned in PO	Record	Record
			Oxygen content	Chemical Analyzer (Spectrometer)		Record	Record
2	Physical	One sample upto 3000 Kg	Dimensions (Thickness, Width, Radius on edges)	Micrometer		Record	Record
		Complete Lot	Cleanliness, Smoothness, brightness and free from defects	Visual		Record	Record

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Sl. No.	Subject / Product / Process	Sample Size & Frequency of Inspection	Parameters for Inspection (as applicable)	Mode of Inspection / Equipment used	Acceptance Limits / Criteria / Specified value	Rejection Details/ Reprocessed /scraped	Traceability register no.
3	Mechanical	One sample upto 3000 Kg	Tensile Strength & Elongation	Tensile testing machine	Relevant BHEL specification of bare copper mentioned in PO	Record	Record
			Hardness	Hardness tester		Record	Record
			Bend Test	Bending machine		Record	Record
			Edgewise bending	Bending machine		Record	Record
4	Electrical	One sample upto 3000 Kg	Electrical Conductivity/ Resistivity	Conductivity meter/ Resistivity Meter		Record	Record

Note: Following Test Certificate (TC) shall be submitted along with supplies:

1. Test Certificate (TC) of final inspection of product
2. Raw material (copper cathode/CC rod) TC from the manufacturer.

PREPARED BY	APPROVED BY
Name & Signature	Name & Signature