

दिनांक एवं हस्ताक्षर SIGN & DATE		संस्थान क्रय विनिर्देश (सी.एफ.एफ. पी-हरिद्वार) PLANT PURCHASE SPECIFICATION (CFFP - HARIDWAR)		FF-04065 Rev00 पृष्ठ 4 का 1 Page 1 of 4															
		<u>SPECIFICATION FOR INGOTS IN GRADE ALLOY 617</u>																	
संख्या सूची संख्या INVENTORY NO	COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	1.0 GENERAL This specification covers the quality requirements of ingot in grade ALLOY 617 made through VIM + VAR / ESR route.																	
		2.0 APPLICATION Ingot in grade ALLOY 617 based on ASME SB-564 to be used for manufacturing of forgings of higher rating.																	
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		4.0 DIMENSIONS AND TOLERANCES ALLOY 617 ingot shall be supplied as Dia 1300 x Length 2000 mm. Tolerance on all dimensions to be +25, -0 mm.																	
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		5.2 MELTING a) Alloy 617 Ingots shall be produced by using vacuum induction melting (VIM) followed by Vacuum Arc Remelting (VAR) or Electro Slag Refining (ESR). b) Electrode for VAR/ESR remelting has to be single/multiple piece/s without any weld joint.																	
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		<table border="1"> <tr> <td>अनुवादक</td> <td>TRANSLATED BY</td> <td></td> <td></td> </tr> <tr> <td>निर्माणकर्ता</td> <td>WORKED BY</td> <td>VIKAS PALIWAL</td> <td></td> </tr> <tr> <td>जांचकर्ता</td> <td>CHECKED BY</td> <td>PRADEEP KALHAN</td> <td></td> </tr> <tr> <td>पर्यवेक्षणकर्ता</td> <td>APPROVED BY</td> <td>A.N. SUDHAKAR</td> <td></td> </tr> </table>				अनुवादक	TRANSLATED BY			निर्माणकर्ता	WORKED BY	VIKAS PALIWAL		जांचकर्ता	CHECKED BY	PRADEEP KALHAN		पर्यवेक्षणकर्ता	APPROVED BY
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सहमत विभाग AGREED DEPTT	नाम NAME	दिनांक एवं हस्ताक्षर DATE & SIGNATURE	स्वीकृति : संस्थान मानक समिति APPROVED : PLANT STANDARDS COMMITTEE																
	Q+BE	G.M.VARMA	निर्माण: फोर्ज तकनीकी PREPARED : FORGE TECH																
संख्या सूची संख्या INVENTORY NO			जारी : फोर्ज तकनीकी ISSUED : FORGE TECH	दिनांक : DATE : 16/10/20															

दिनांक एवं हस्ताक्षर SIGN & DATE	संस्थान क्रय विनिर्देश (सी.एफ.एफ.पी-हरिद्वार) PLANT PURCHASE SPECIFICATION (CFFP - HARIDWAR)	FF-04065 Rev00																																													
		पृष्ठ 4 का 2 Page 2 of 4																																													
सामग्री सूची नं. INVENTORY NO.	Table-1: Chemical composition (in weight %) of Alloy 617																																														
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स्वतंत्रता एवं गोपनीय The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	6.0 SURFACE QUALITY The ingot surface shall have good surface finish, free from cracks, slagpatches, scabbing, discontinuity, loose metal skin etc. The ingot shall be free from bends. Slag runoff during remelting at any stage is not acceptable.																																														
	7.0 MINIMUM QUALIFICATION REQUIREMENT FOR SUPPLY OF ALLOY 617 INGOTS: Following are the Mandatory Qualification Requirements . Offers of vendors not meeting these requirements will not be considered.																																														
	7.1 EXPERIENCE REQUIREMENT: Vendor must meet any one of the following experience criteria given below: a) Vendor must have VAR/ ESR of capacity 20 T. b) Vendor must have manufactured ingots in material grade alloy 617 or equivalent nickel alloys, through VIM + VAR/ESR route, of weight ≥ 10 Ton on the enquiry opening date. In support of the above, the vendor has to furnish details of their past supply in the format below:																																														
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	Vendor to submit documentary evidence like copy of unpriced purchase order/test Certificates/shipping documents showing PO number customer name and weight of supplied item etc in support of the above experience.																																														
	c) In case vendor has experience of supplying weight < 10 Ton ingot, following has to be furnished by vendor: - Flow chart of manufacturing of ingot. - Details of VIM furnace to be furnished.																																														
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जांचकर्ता CHECKED BY	निर्माण फोर्ज तकनीकी PREPARED : FORGE TECH	जारी : फोर्ज तकनीकी ISSUED : FORGE TECH																																													
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सप्लायर की सूची संख्या INVENTORY NO	- Vendor to submit details of their supply as per above format at 7(b) for Alloy 617 or equivalent Ni alloys forging. Documentary evidence like copy of unpriced purchase order/test certificates/shipping documents showing PO number customer name and weight of supplied item etc in support of the above experience.				
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	7.2 MANUFACTURING FACILITIES: Vendor has to provide details of in house melting, refining facility (VIM + VAR or VIM + ESR), testing facility and heat treatment facility as per the melting requirement at point 5.2 stated above.				
	8.0 ADDITIONAL REQUIREMENTS The Manufacturer shall mention the amount of Top and Bottom Discards considered in the mentioned ingot as per standard practice. These discards will suffice to have high integrity of forgings without any defects. The hot topping practice should be in such way that the top surface of the ingot shall be flat without depression. At the time of submission of offer manufacturers must indicate all the quality parameters envisaged for testing & ensuring sound ingot.				
	9.0 VISIT TO SUPPLIER WORKS (a) BHEL shall have the right to visit the vendor works and witness the facilities available before the placement of the order. (b) After placement of the order 2 nos BHEL personnel shall have the right to visit vendor works for witness /inspection of the manufacturing of the Ingot from VIM + VAR/ESR.				
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निर्माणकर्ता WORKED BY	Vivas Ratiwal	done	स्वीकृति : संस्थान मानक समिति APPROVED : PLANT STANDARDS COMMITTEE		
जांचकर्ता CHECKED BY	Pradeep Kallua	gf	निर्माण: फोर्ज तकनीकी PREPARED : FORGE TECH	जारी : फोर्ज तकनीकी ISSUED : FORGE TECH	दिनांक : DATE : 10/10/20

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सामग्री सूची संख्या INVENTORY NO	सामग्री की मात्रा एवं अतिरिक्त QUANTITY AND SURPLUS	10.0 TEST CERTIFICATES A test certificate showing the following information shall be furnished. - PO No - Size and Weight of Alloy 617 ingot. - Grade - Heat No / Identification No - VAR/ESR Electrode melting route, size, weight, quantity of electrodes. Chemical composition of each cast analysis, heat treatment given any for electrodes. - Chemical composition in final VAR/ESR ingot as per clause 6.3. - Post heat treatment details - Surface inspection report. 11.0 Marking: The following details shall be marked clearly on the final Alloy 617 ingots. - Melt No. - Grade - Manufacturer's Stamp - BHEL Inspector's Stamp - Top and Bottom sides of ingot 12.0 Packing and Transportation: ESR Stock shall be properly protected from any damage during transit.			
स्वत्वाधिकार एवं गोपनीयता The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	स्वीकृती APPROVED : संस्थान मानक समिति PLANT STANDARDS COMMITTEE	निर्मोणकर्ता WORKED BY Vikas Palwal	जांचकर्ता CHECKED BY Pradeep Kothari	निर्माण : फोर्ज तकनीकी PREPARED : FORGE TECH	जारी : फोर्ज तकनीकी ISSUED : FORGE TECH
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ISO 9001:2008, 14001:2004,
50001:2011 & OHSAS 18000
MAHARATNA COMPANY

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PQC FOR INGOT IN GRADE ALLOY 617 DIA 1300 MM & LENGTH 2000 MM

Vendor must meet the following criteria given below:

- a) Vendor must have VAR/ESR of Capacity 20 Ton.
- b) Vendor must have manufactured ingots in material grade alloy 617 or equivalent Nickel alloys, through VIM + VAS/ESR route, of weight ≥ 10 Ton on or before the enquiry opening date.**

In support of the above, the vendor has to furnish details of their past supply in the format below:

S. No.	Weight (Kg)	Size DiaXLength	Material Grade	Qty	Ingot used internally for Forging or Ingot supplied to Customer	Date of supply	PO No. of Customer to whom Ingot/Forging was supplied	Name & Address of Customer

Vendor to submit documentary evidence like copy of unpriced purchase order/test certificates/shipping documents showing PO Number, Customer name and weight of supplied item etc. in support of the above experience.

- c) In case vendor has experience of supplying alloy 617 or equivalent Ni alloys, weight < 10 Ton ingot, following has to be furnished by vendor:**

- Flow chart of manufacturing of Ingot
- Details of VIM+VAR/ESR furnace to be furnished.
- Vendor to submit details of their supply as per above format at (b) for Alloy 617 or equivalent Ni alloys forging. Documentary evidence like copy of unpriced purchase order/test certificates/shipping documents showing PO Number, Customer name and weight of supplied item etc. in support of the above experience.