

**AMENDMENT -NOTIFIFCATION**

AA 121 44

Rev. No. 00

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AA 12144: PHOSPHOR BRONZE ROD - CLOSE TOLERANCE**1) PREFACE SHEET; COMPARABLE STANDARDS:**

German reference is modified as "DIN 17672, Part2 -1985,
Gr:CuSn6Fe34"

2) PAGE 1 OF 3:**i) Cl 1. GENERAL:**

The value 'from 6mm' given in the middle of 2nd line is
modified as "over 6mm"

ii) Cl 4. COMPLIANCE WITH NATIONAL STANDARDS:

DIN reference is modified as "DIN 17672, Part 2-1985,
Gr:CuSn6Fe34)"

Please see Instructions on the reverse.

Ref :	Amd No.	Approved	Issued	Date	Cum.Sr.No.
Cl. 16.3.56 of MOM of MRC-NFCW+HE	01	MRC NFCW+HE	CORP. R&D	01.11.2001	A 3010



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3) PAGE 2 OF 3:

i) Cl 8. CHEMICAL COMPOSITION:

Max. percent of Tin given in the table is modified as "7.0" in place of 7.5 and max. percent of Phosphorus is modified as "0.35" in place of 0.40.

ii) Cl 9.2 & 9.3:

a) Clause 9.2 is completely deleted.

b) Clause 9.3 is renumbered as "Cl 9.2".

Please see Instructions on the reverse.

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PHOSPHOR BRONZE ROD - CLOSE TOLERANCE

1. **GENERAL:**
 This specification governs the quality requirements of copper tin alloy rods of sizes from 6 mm upto and including 30 mm diameter.
 Refer AA 12141 for Phosphor Bronze Rods And Bars with normal tolerances.
2. **APPLICATION:**
 Used in electrical machines.
3. **CONDITION OF DELIVERY:**
 As drawn in straight length.
4. **COMPLIANCE WITH NATIONAL STANDARDS:**
 The material shall comply, with the requirements of the following National Standard and also meet the requirements of this specification.
 DIN 17672-Part 2 -1974 : Bars Of Copper And Wrought
 Gr: CuSn 6 F-35 : Copper Alloys
5. **Dimensions And Tolerances:**
 - 5.1 **Sizes:**
 As stated in the order
 - 5.2 **Tolerances:**
 Tolerance on round rods shall be as per table I of DIN 1756, reproduced below:

Size, mm		Permissible variation (h 11) mm	
over	upto & incld.	Plus	Minus
6	10	0	0.09
10	18	0	0.11
18	30	0	0.13
6. **FREEDOM FROM DEFECTS:**
 The material shall be clean, bright, smooth and straight, free from fins, spills, scales, blisters, cracks, slivers and other harmful defects.

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Refer Cl. 29.2 (E) Of MOM Of MRC (E)			INTERPLANT MATERIAL RATIONALISATION COMMITTEE - MRC (E)		
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					31-7-95



7. **TEST SAMPLES:**

One sample shall be selected per size per batch per consignment for testing.

8. **CHEMICAL COMPOSITION:**

The chemical composition of the material shall be as follows

Element	Percent	
	Min	Max
Tin	5.5	7.5
Phosphorus	0.01	0.40
Copper	Remainder	

9. **PROPERTIES:**

When tested as per clause 9.2 of DIN 17672-Part 2, the test sample shall show the following properties:

9.1 **Tensile:**

Tensile strength : 340 - 400 N/mm²
 0.2% proof stress : 250 N/mm², maximum

9.2 **Elongation-For Information Only:**

55% on 5.65 vSo gauge length.

9.3 **Hardness-Brinell-For Information Only:**

85 HB

9.4 **Specific Resistance:**

0.108 ±10% Ohm mm²/m, at 20°C.

Temperature correction factor shall be calculated from resistance - temperature coefficient of 0.00072 per°C at 20°C.

10. **INSPECTION AT SUPPLIER'S WORK:**

Whenever specified, tests and inspection are to be conducted in the presence of BHEL's representative.

The supplier shall offer BHEL representative all reasonable facilities, without charge to satisfy the latter that the material is being furnished in accordance with this specification. The supplier shall prepare and provide necessary test specimens for testing to be carried out at his premises. If facilities are not available at his works, the supplier shall make necessary arrangements for carrying out the prescribed tests elsewhere. The supplier shall notify BHEL in advance about the readiness of the material for inspection and testing.



BHEL reserves the right to test the material at BHEL's works and the final acceptance of the material shall be based on these test results.

11. TEST CERTIFICATES:

Unless otherwise stated, three copies of certificates shall be supplied along with each consignment giving the following information.

In addition, the supplier shall ensure to enclose one copy of test certificate along with their despatch documents to facilitate quick clearance of the material.

AA 12144 : Phosphor Bronze Rod - Close Tolerance.
BHEL order no.
Manufacturer's/supplier's name.
Trade mark, if any.
Lot/consignment no.
Quantity Supplied.
Test results of clause 5, 8 and 9.

12. PACKING AND MARKING:

The material shall be suitably wrapped with kraft paper and packed in air tight , moisture proof crates to prevent corrosion and damage during transit. Each consignment shall be legibly marked or labeled with the following information.

AA 12144 : Phosphor Bronze Rod - Close Tolerance.
BHEL order no.
Manufacturer's/supplier's name.
Lot/consignment no.
Trade mark, if any.
Sizes and quantity supplied.

13. REJECTION AND REPLACEMENT:

If the material does not comply with the requirements of this specification during receipt inspection at BHEL or if any defect is found during further processing of the material, BHEL reserves the right to reject the whole consignment notwithstanding any previous certification of satisfactory testing and/or inspection. The supplier shall undertake to replace the rejected material at his own cost and the rejected material shall be taken back by the supplier after fulfilling all the commercial terms and conditions.

14. REFERRED STANDARDS:

The following is the list of the latest standards, as published by the respective issuing bodies, referred to in this specification.

1. DIN 1756