



COPPER - CHROMIUM (CuCr) TERMINALS

1.0 INTRODUCTION

Copper Chromium terminals are used for current collection from the moving stem of Vacuum Interrupters in the assembly of VCB products. These terminals provide a high conductivity path for current and have spring characteristics for their easy assembly / disassembly functions.

2.0 MATERIALS :

These terminals shall be chill castings in solution treated and precipitation hardened (at elevated temperatures) condition. The castings shall be free from microporosities and gross inclusions. The material shall be equivalent to following standards :

- | | | |
|---------------------------|----|-----------------|
| Grade | | Standard |
| - CC1 - TF
(Group B) | of | BS1400 : 1985 |
| | or | |
| - CuCrF35 | of | DIN17666 |

3.0 PROPERTIES :

CHEMICAL

Cr = 0.3 to 1.25 %, Cu = Remainder

PHYSICAL

Density = 8.9 +0.1 gm/cubic cm

MECHANICAL

Tensile strength = 350 N/sq. mm (min)
0.2 % yield strength (Rp 0.2) = 275 N/sq. mm (min)
Ultimate Elongation (A) = 15 % (min)
Hardness = 100 HB (min)

ELECTRICAL

Conductivity = 80 % IACS(min)
at 20 deg C

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REV.	01	PRINTS TO :- 11 KV PLNG QCX MCD HVD	APPROVED -		
ALTD.	DB		RKS		
APPD.	IP		PREPARED	ISSUED	DATE
DATE.	14.06.01		SMM	RKK	17.07.95



PRODUCT STANDARD
SWITCHGEAR ENGINEERING DIVISION

SG 12713 REV.00

PAGE 2 OF 2

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- 4.0. SUPPLY CONDITION OF MATERIAL /COMPONENTS-
Material/components shall be supplied on fully finished basis and in unplated condition .Plating as per drawing will be done inside BHEL No tools, ,jig & fixtures will be provided by BHEL.
- 5.0 QA PLAN-
QA Plan shall be submitted alongwith offer & got approved .This shall include tests & measurements on raw material ,semifinished /finished product ,details of manufacturing process followed including tools,jigs & fixtures /gauges used at different stages to ensure quality of end product
- 6.0 TESTING REQUIREMENTS :
Tests for following properties shall be conducted at the supplier's works :
 - Soundness of castings ; The castings shall be free from microporosities and gross inclusions. This shall be verified by either fracture test or X-Ray examination on sample casting.
 - Mettlographic Examination : For proper heat treatment condition of the castings.
 - Determination of chemical compositions, mechanical and electrical properties as per para 3.0.
- 7.0 ACCEPTANCE CRITERIA :
Suppliers inspection & test report as per approved QA Plan & detailed dimensional report as per drawing
 - TESTS AT BHEL : For first time lot of supply all tests as per para 3(test pieces to be supplied by supplier)and subsequently based on feedback of above only, Hardness and electrical conductivity test shall be conducted on 2% samples or min 2 Nos per supply lot.
 - DIMENSIONAL CHECKS : As per drawings.
- 8.0 IDENTIFICATION MARKING FOR TRACEABILITY :
Following markings shall be engraved . or punched on the unmachined side of the terminal casting.
 - Manufacturing firm's logo.
 - Month & year of mfg.
- 9.0 .PACKING-
Terminal shall be packed individually and further packed in corrugated /puffed sheets to prevent mechanical damage