

61204-50591-2 ON DRG

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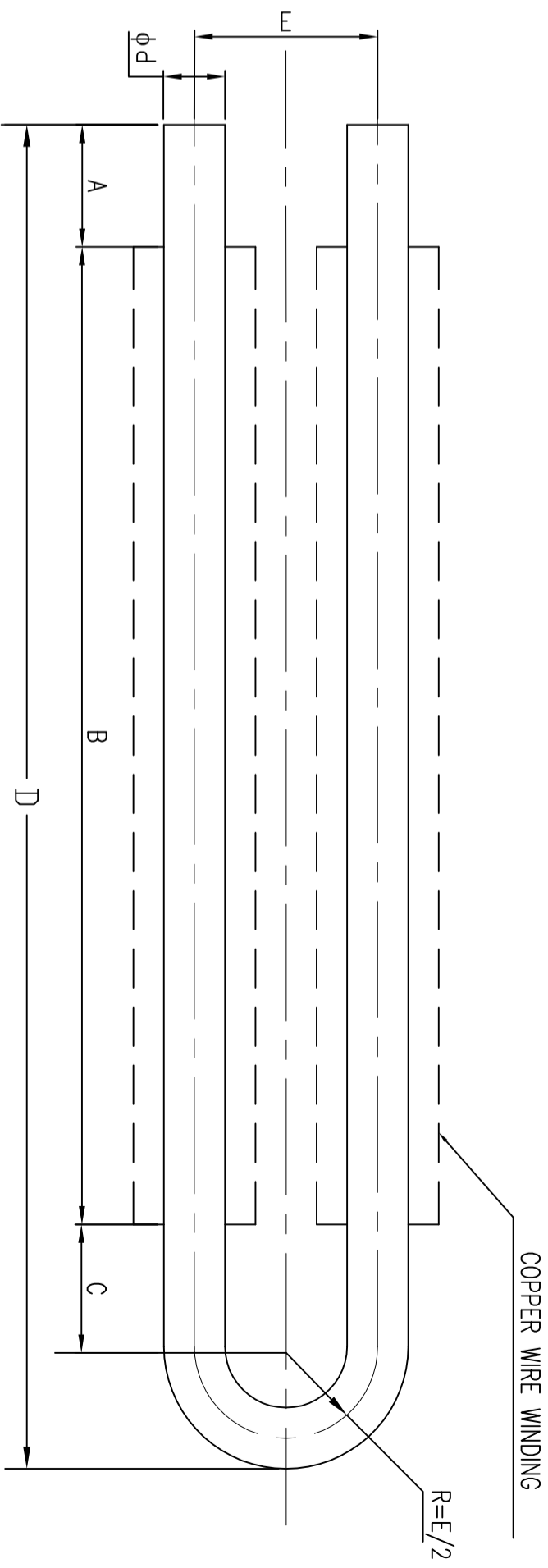
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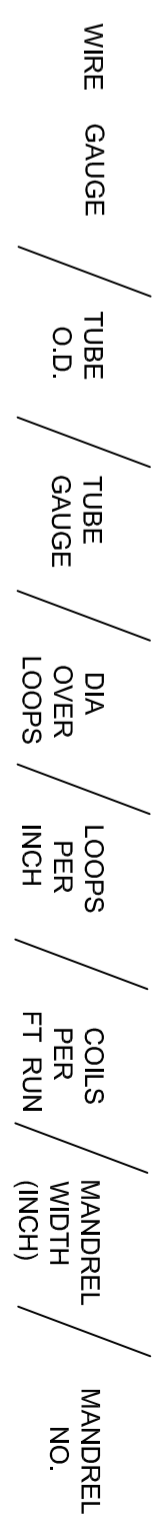
ITEM NO.	TUBE O/D φd	A	B	C	D	E	DEV LENGTH	WINDING FORMULA	HYD. TEST PR. AFTER WINDING AND BENDING	TUBE WEIGHT IN KG	COPPER CONTENT IN KG	NICKEL CONTENT IN KG
001	12.7(1/2")	30	438	25	522	45.6	1058	22/12"19/1.515"30.8/52.6/05 NO.150	20 Kg/cm ²	1.139	1.104	0.035
002	9.5(3/8")	25	445	25	517	33.4	1043	24/3/8"19/1.3"37.6/67.9/05 NO.157	20 Kg/cm ²	0.783	0.758	0.025
003	9.5(3/8")	25	245.5	25	317	33.4	643.5	24/3/8"19/1.3"37.6/67.9/05 NO.157	20 Kg/cm ²	0.449	0.433	0.016
004	12.7(1/2")	41	638	25	733	45.6	1480	22/12"19/1.515"30.8/52.6/05 NO.150	20 Kg/cm ²	1.639	1.59	0.049
005	12.7(1/2")	30	588	25	672	45.6	1358	22/12"19/1.515"30.8/52.6/05 NO.150	20 Kg/cm ²	1.509	1.464	0.045
006	12.7(1/2")	30	338	25	422	45.6	858	22/12"19/1.515"30.8/52.6/05 NO.150	20 Kg/cm ²	0.894	0.865	0.029
007	12.7(1/2")	30	388	25	472	45.6	958	22/12"19/1.515"30.8/67.9/05 NO.157	20 Kg/cm ²	1.209	1.177	0.032
008	12.7(1/2")	30	238	25	322	45.6	658	22/12"19/1.515"30.8/52.6/05 NO.157	20 Kg/cm ²	0.647	0.625	0.022
009	12.7(1/2")	30	388	25	472	45.6	958	22/12"19/1.515"30.8/52.6/05 NO.157	20 Kg/cm ²	1.016	0.984	0.032
010	12.7(1/2")	30	488	25	572	45.6	1158	22/12"19/1.515"30.8/52.6/05 NO.157	20 Kg/cm ²	1.263	1.224	0.039



NOTES :-

1. TUBE MATERIAL :- 90 / 10 CUPRO NICKEL TO AA12130 IN BRIGHT ANNEALED CONDITION.
2. **CONDITION OF BASE TUBE :-** FULL LENGTH SHALL BE BRIGHT ANNEALED CONDITION SUITABLE FOR EXPANSION AT BOTH ENDS.
3. **FIN MATERIAL :-** COPPER WIRE OF ELECTRICAL GRADE HAVING CONDUCTIVITY 97% MIN.
(a) SOLDER TO IS:193 GRADE Sn60.
(b) TESTING :- FOLLOWING TESTS ARE TO BE CONDUCTED ON TUBES AS PER AA12130
4. **BASE TUBE :-**
(a) MECHANICAL AND CHEMICAL.
(b) HYDROSTATIC AND EDY CURRENT TEST BEFORE WINDING AS PER AA12130.
(c) MERCURIUS NITRATE AND MICROSCOPIC EXAMINATION.
5. **WIRE :-** COPPER WIRE CONDUCTIVITY TEST.
(a) HYD. TEST :-
(b) FINAL HYDROSTATIC TEST AS PER CHART.
(c) TEST CERTIFICATES :-
(i) 6 COPIES OF EACH FOR ABOVE TESTS.
6. **GENERAL :-** WINDING & ENDS ARE TO BE FIRMLY SECURED WITH THE TUBE TO GIVE EFFECTIVE HEAT TRANSFER AND WITHSTAND TRANSPORT AND OPERATIONAL HAZARDS.
7. **INSPECTION :-** SUPPLIER TO FOLLOW THE BHEL APPROVED QUALITY CONTROL PROCEDURE.
(i) TUBES ARE TO BE INSPECTED BY CUSTOMER OR THEIR AUTHORISED REPRESENTATIVE AND SUPPLIER SHOULD PROVIDE ALL FACILITIES FOR INSPECTION AT THEIR WORKS.
8. **CONDITION OF DELIVERY :-**
(i) INSIDE OF TUBE IS TO BE FREE FROM CARBONACEOUS MATERIAL, DUST, OIL ETC.
(ii) THE TUBES SUPPLIED SHALL BE ROUND, SMOOTH, STRAIGHT CLEAN & FREE FROM HARMFUL DEFECTS
(iii) THE ENDS OF TUBE TO BE SQUARE, DEBURRED AND CAPPED BEFORE DESPATCH
9. **GUARANTEE :-** TUBES SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIAL, TREATMENT AND WORKMANSHIP FOR A PERIOD OF 30 MONTHS AFTER DESPATCH OR 12 MONTHS AFTER ACTUAL USE IN OUR EQUIPMENT WHICH EVER IS EARLIER.
10. **PACKING & MARKING :-**
(i) THE TUBES SHALL BE SUITABLY PACKED TO AVOID MOVEMENTS AND RUBBING.
(ii) THE CONSIGNMENT SHOULD BE ENDORSED WITH TUBES FOR OIL COOLER AND P.O. NO.

DETAIL OF WINDING FORMULA



INVENTORY NO. SIGN. & DATE REF. DRG. NO.

REV.	DATE	ALTERED	REV.	DATE	ALTERED
03	27.02.12	CHECKED APPD.	02	29.04.11	CHECKED APPD.
02		AKS	01	24.06.10	CHECKED APPD.
01		SKB			RAJEEV

ADDITIONAL INFORMATION

STATUS OF DRAWING

DISTRIBUTION OF PRINTS

OC - 1 HCM - 4

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT **PLUG IN TYPE OIL COOLER**

DEPT. **UNTDL. DIMS. GR.** **SCALE** **WEIGHT(K.G.)**

BHARAT HEAVY ELECTRICALS LTD. BHOHAL

DRN **NAME** **SIGN** **DATE**

CKD **PAWAR** **-sd/-** **23.12.09**

SKB/MKS **-sd/-** **23.12.09**

RAJEEV **-sd/-** **23.12.09**

TITLE **DRAWING NO.** **REV.**

TUBE FOR PLUG IN TYPE OIL COOLER **2-16505-40219** **03**

(WITH 19-SWG TK BASE TUBE) **SHT. NO. 01** **NO. OF SHT. 01**

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