



PLANT STANDARD HYDERABAD

HY7433661

Rev. No. 00

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GI CABLE TRAYS AND ACCESSORIES

1. SCOPE:

This specification governs the quality requirements of design, manufacture, testing, packing at manufacturers' work and delivery at site of various Cable Trays and accessories, as per requirements spelt out in this specification and complete in all respect.

2. APPLICABLE STANDARDS:

The cable trays and accessories shall comply to the latest edition of applicable Indian standards but not limited to the following:

- IS-513: For cold rolled low carbon steel sheets and strips.
- IS-816: For use of metal arc welding and for general construction in MS.
- IS-1079: For hot rolled carbon steel sheets and strips specifications.
- IS-2629: For practice of hot dip galvanising & adhesion test
- IS-1363: For heat bolts, screws and nuts.
- IS-1367: For threaded steel fasteners.
- IS-5986: For hot rolled steel plates, sheets, strips and flats for flanging & forming operation.

3. CONSTRUCTIONAL REQUIREMENTS:

- a) All materials and hardwares to be supplied by the contractor shall be new , unused and of best quality and it shall confirm to the latest specifications of Bureau of Indian Standards
- b) The cable trays and accessories such as coupler plates, Tees, horizontal cross, elbows and covers shall have rigid welded constructions and shall be fabricated out of minimum 2mm thick hot rolled sheet steel.
- c) The rungs shall be welded to the side runners in ladder type cable trays.
- d) Hot dip galvanizing shall be done after fabrication as per relevant Indian standards. The amount of galvanizing shall be min. 610 g/m².
- e) All the finished cable trays and accessories shall be free from sharp edges, corners, burrs and unevenness.

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**Prepared:
DY. MNGR.,
(PED)**

Approved:

DGM (TS)

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f) Cable trays shall be suitable for a cable weight of 75kg/m of running length of tray and additionally it shall also be suitable for point load of 75kg(equivalent to weight of a man working on the cable tray).

g) All hardware and fittings like bolts, nuts, washers etc. shall be hard chrome or Cadmium plated or Zinc passivated.

h) No negative tolerance is acceptable. However a positive tolerance of 2mm (Max) will be acceptable for different types of cable trays only and not for coupler plates and other assemblies.

i) Constructional, dimensional and sectional details of various types of GI cable trays and accessories are shown in the following enclosed specifications.

Ladder Type Cable Trays & Accessories (Channel design, Type-1) : HY7433662

Ladder Type Cable Trays & Accessories (Channel design, Type-2) : HY7433663

Ladder Type Cable Trays & Accessories (Angular design, Type-3) : HY7433664

Perforated Type Cable Trays & Accessories : HY7433665

Solid Bottom Cable Trays & Accessories : HY7433666

4. INSPECTIONS AND TESTS:

a) The following tests shall be carried out on all types of cable trays and accessories.

(i) Test for thickness of Galvanized coating by Elcometer.

(ii) Test for mass of Galvanized coating by stripping test.

(iii) Test for determination of uniformity of Galvanized coating.

(iv) Load test for uniform point loading

b) Visual inspection for conformance of dimensional details and materials and etc, shall be carried out at manufacturer's works in presence of owner's/customer's/customer consultant's representative before dispatch of materials.

c) Inspection call shall be given to owner 15 days in advance for witnessing the inspection.

d) It shall be bidder's responsibility to obtain owners/customer's/customer consultant's Final approval (without any comments) on the drawings before inspection call is given.

5. DOCUMENTATION:

a) Two sets of all relevant drawings, technical data sheets, routine and type test certificates, catalogues shall be furnished along with the technical bid.



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- b) 12 sets of above mentioned documents shall be submitted to owner for approval within 1 week from date of placement of Purchase order.
- c) The drawings and technical data sheets shall be submitted in the format provided by BHEL.

Notes:

- I No deviation is allowed on the above mentioned technical requirements and Bidder shall furnish clause wise confirmation to all the points listed above.
- II For sectional, dimensional & constructional details of Ladder Type Cable Trays and accessories: Refer attached Annexure.
- III Bidder shall submit all relevant sectional details (drawings) of main cable trays and all associated accessories like bends, elbows, tees, cross and etc along with the technical Bid for owner's evaluation.
Technical bids without the above details will not be evaluated likely to be rejected technically.
- IV After award of PO bidder shall furnish all the required drawings for owner's approval. Bidder shall necessarily obtain Manufacturing Clearances on the drawings from Owner, before taking up manufacturing activities.



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GI LADDER TYPE (CHANNEL) CABLE TRAYS AND ACCESSORIES (TYPE-2)

1. This standard shall be read in conjunction with BHEL plant standard no. HY7433661, GI cable trays and accessories.

This standard covers the constructional, dimensional and sectional details of various types of GI ladder type (Channel) cable trays and accessories (Type-2) and same are given in the following pages.

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Document is revised generally.

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DY. MNGR.,
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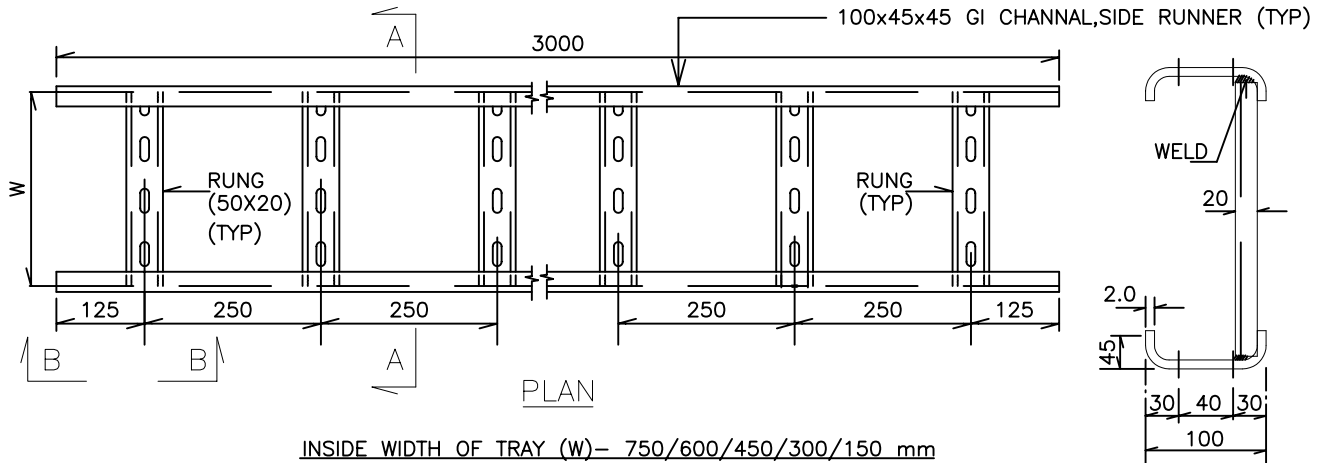
Date of 1st issue
APR., 2006

Dt. Apr 2007

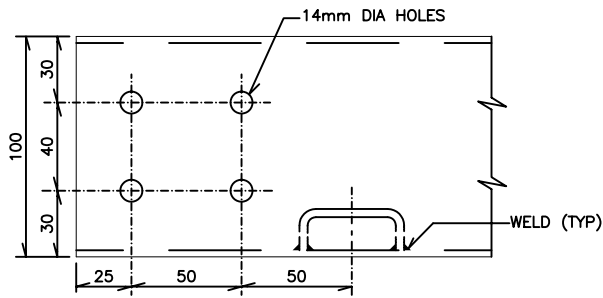
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Year:

LADDER TYPE STRAIGHT RUN CABLE TRAY ALONG WITH ACCESSORIES
INCLUDING COUPLER PLATES -TYPE 2 (CHANNEL TYPE)

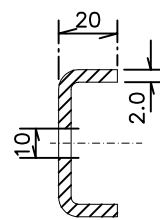
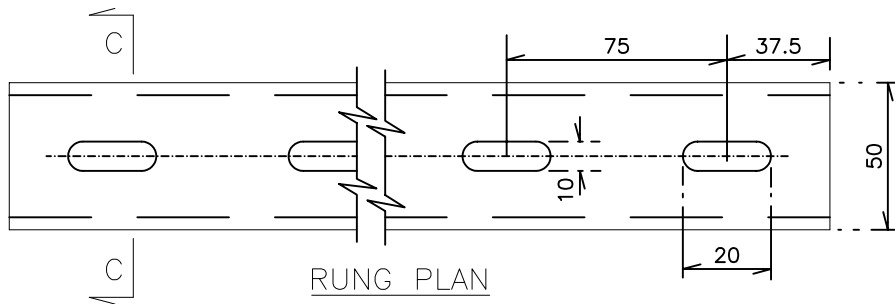


SECTION A-A



SECTION 'B-B'

H=100mm for 300/450/600/750mm
width Tray
H=50mm for 150mm width Tray



SECTION 'C-C'

NOTES:

1. LADDER TYPE (CHANNEL TYPE) STRAIGHT RUN CABLE TRAY TYPE-2 INCLUDES SUPPLY OF 2 Sets OF COUPLER PLATES ALONG WITH ACCESSORIES LIKE WASHERS, NUTS AND BOLTS. DETAILS OF THE SAME IS ATTACHED IN SHEET NO. 4 OF 20
2. ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONED, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
3. MATERIAL CODES FOR VARIOUS LADDER TYPE(CHANNEL TYPE) STRAIGHT RUN CABLE TRAY TYPE2 ARE GIVEN IN THE FOLLOWING PAGE.
4. IN ORDER TO MAINTAIN PROPER EARTH CONTINUITY BOND, PAINTING ON SURFACES IN CONTACT BETWEEN COUPLER PLATES AND CABLE TRAY SHALL BE SCRAPPED AT THE TIME OF INSTALLATION.
5. THE DETAILS SHOWN IN THE DRAWING ARE TYPICAL FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS.



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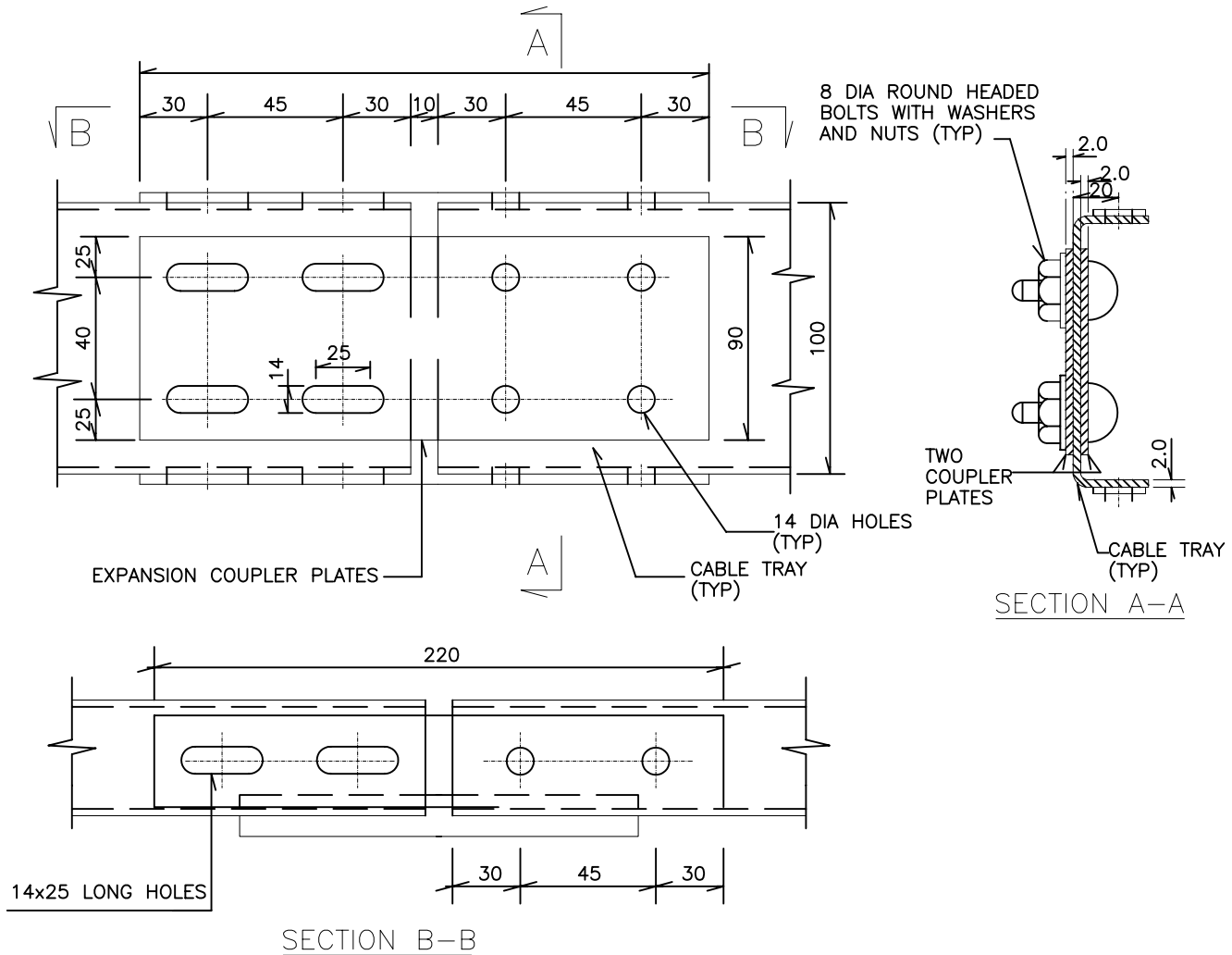
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MATERIAL CODES FOR LADDER TYPE STRAIGHT RUN CABLE TRAY
ALONG WITH ACCESSORIES INCLUDING COUPLER PLATES –TYPE 2 (CHANNEL TYPE)

VAR NO	DESCRIPTION	MATERIAL CODE
01	750 mm WIDTH LADDER TYPE (CHANNEL TYPE) STRAIGHT RUN CABLE TRAY ALONG WITH ACCESSORIES INCLUDING COUPLER PLATES –TYPE 2	HY7433663010
02	600 mm WIDTH LADDER TYPE (CHANNEL TYPE) STRAIGHT RUN CABLE TRAY ALONG WITH ACCESSORIES INCLUDING COUPLER PLATES –TYPE 2	HY7433663029
03	450 mm WIDTH LADDER TYPE (CHANNEL TYPE) STRAIGHT RUN CABLE TRAY ALONG WITH ACCESSORIES INCLUDING COUPLER PLATES –TYPE 2	HY7433663037
04	300 mm WIDTH LADDER TYPE (CHANNEL TYPE) STRAIGHT RUN CABLE TRAY ALONG WITH ACCESSORIES INCLUDING COUPLER PLATES –TYPE 2	HY7433663045
05	150 mm WIDTH LADDER TYPE (CHANNEL TYPE) STRAIGHT RUN CABLE TRAY ALONG WITH ACCESSORIES INCLUDING COUPLER PLATES –TYPE 2	HY7433663053

TYPICAL ARRANGEMENT OF COUPLER PLATE SET WITH ACCESSORIES
INCLUDING FIXING DETAILS FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS–TYPE2



NOTES

1. ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONED, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
2. MATERIAL – Min 2 mm thick M.S SHEET FOR 750/600/450/300/150 mm CABLE TRAYS.
3. IN ORDER TO MAINTAIN PROPER EARTH CONTINUITY BOND, PAINTING ON SURFACES IN CONTACT BETWEEN COUPLER PLATES AND CABLE TRAY SHALL BE SCRAPPED AT THE TIME OF INSTALLATION.
4. TWO COUPLER PLATES TO BE PROVIDED ONE EACH ON EITHER SIDE OF TRAY.
5. ONE SET OF COUPLER PLATE WITH ACCESSORIES SHALL CONSISTS 2No. OF COUPLER PLATES 8No. OF NUTS, BOLTS AND WASHERS AS SHOWN IN THE DRAWING.
6. MATERIAL CODES FOR LOOSE SUPPLY OF COUPLER PLATE WITH ACCESSORIES FOR VARIOUS TYPE OF LADDER TYPE (CHANNEL TYPE) CABLE TRAYS–TYPE2, ARE GIVEN IN THE FOLLOWING PAGE.



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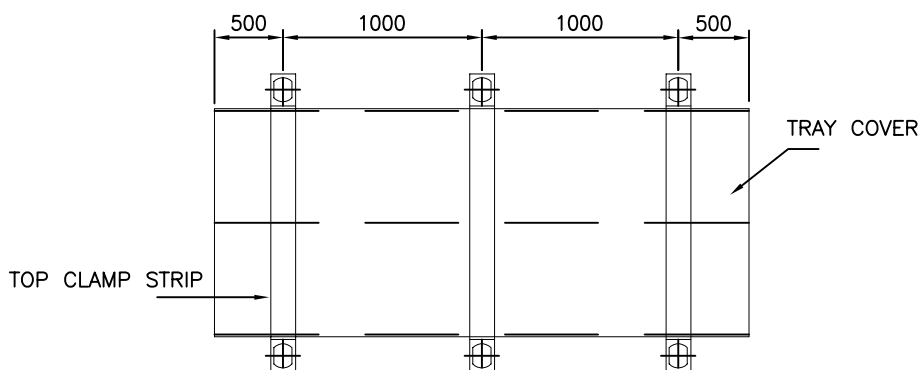
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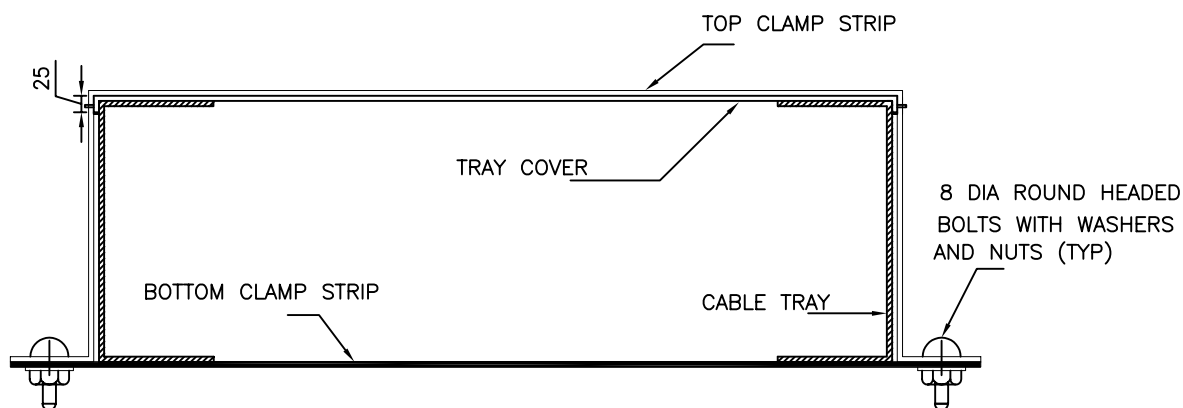
MATERIAL CODES FOR COUPLER PLATE SETS INCLUDING ACCESSORIES FOR
LADDER TYPE(CHANNEL TYPE) CABLE TRAYS –TYPE2 (IN CASE OF LOOSE SUPPLY)

VAR NO	DESCRIPTION	MATERIAL CODE
06	COUPLER PLATES SET ALONG WITH ACCESSORIES FOR 750 mm LADDER TYPE (CHANNEL TYPE) CABLE TRAY– TYPE2	HY7433663061
07	COUPLER PLATES SET ALONG WITH ACCESSORIES FOR 600 mm LADDER TYPE (CHANNEL TYPE) CABLE TRAY– TYPE2	HY7433663070
08	COUPLER PLATES SET ALONG WITH ACCESSORIES FOR 450 mm LADDER TYPE (CHANNEL TYPE) CABLE TRAY– TYPE2	HY7433663088
09	COUPLER PLATES SET ALONG WITH ACCESSORIES FOR 300 mm LADDER TYPE (CHANNEL TYPE) CABLE TRAY– TYPE2	HY7433663096
10	COUPLER PLATES SET ALONG WITH ACCESSORIES FOR 150 mm LADDER TYPE (CHANNEL TYPE) CABLE TRAY– TYPE2	HY7433663100

TYPICAL ARRANGEMENT SHOWING DETAILS OF CABLE TRAYE COVER
WITH ACCESSORIES FOR LADDER TYPE(CHANNEL TYPE) CABLE TRAYS–TYPE2



CABLE TRAY COVER WITH ACCESSORIES–PLAN



CABLE TRAY COVER WITH ACCESSORIES–ELEVATION

NOTES

1. CABLE TRAY COVER SHALL INCLUDE 1 No OF TRAY COVER OF 2500 mm LENGTH ALONG WITH 3Nos OF TOP CLAMP STRIP, 3Nos OF BOTTOM CLAMP STRIP AND 6Nos OF BOLTS ALONG WITH NUTS AND WASHERS.
2. ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONED, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
3. ALL THE ACCESSORIES EXCEPT NUTS AND BOLTS SHALL BE FABRICATED FROM 2mm THICK GI SHEET STEEL.
4. MATERIAL CODES FOR CABLE TRAY COVERS WITH ACCESSORIES FOR VARIOUS TYPE OF LADDER TYPE (CHANNEL TYPE) CABLE TRAYS–TYPE2, ARE GIVEN IN THE FOLLOWING PAGE.
5. IN ORDER TO MAINTAIN PROPER EARTH CONTINUITY BOND, PAINTING ON SURFACES IN CONTACT BETWEEN COUPLER PLATES AND CABLE TRAY SHALL BE SCRAPPED AT THE TIME OF INSTALLATION.
6. THE DETAILS SHOWN IN THE DRAWING ARE TYPICAL FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS.



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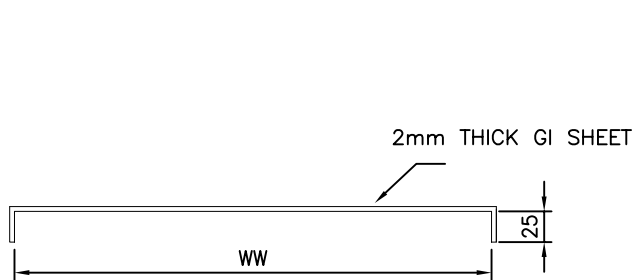
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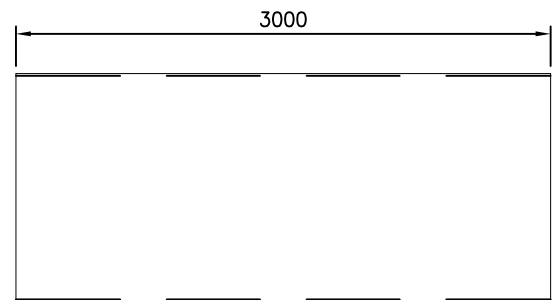
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TYPICAL ARRANGEMENT FOR CABLE TRAY COVER AND ACCESSORIES

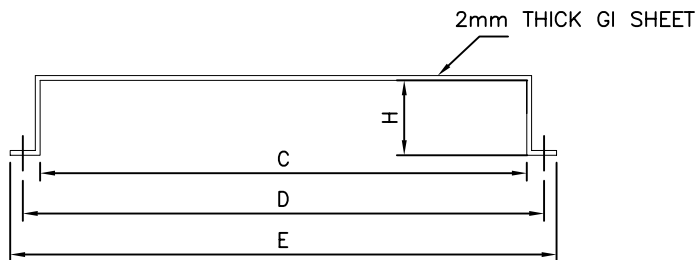
FOR LADDER TYPE CABLE TRAYS-TYPE 2 (CHANNEL TYPE)



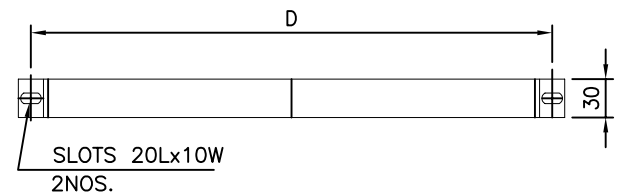
CABLE TRAY COVER-ELEVATION



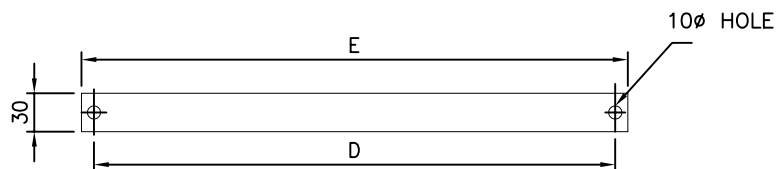
CABLE TRAY COVER-PLAN



TOP CLAMP STRIP-ELEVATION



TOP CLAMP STRIP-PLAN



BOTTOM CLAMP STRIP-ELEVATION

DESCRIPTION	WW	C	D	E	H
COVER FOR 750mm TRAY	756	760	794	824	100
COVER FOR 600mm TRAY	606	610	644	674	100
COVER FOR 450mm TRAY	456	460	494	524	100
COVER FOR 300mm TRAY	306	310	344	374	100
COVER FOR 150mm TRAY	156	160	194	224	50

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MATERIAL CODES FOR TRAY COVERS ALONG WITH ACCESSORIES

FOR LADDER TYPE (CHANNEL) CABLE TRAYS–TYPE2

VAR NO	DESCRIPTION	MATERIAL CODE
11	COVER ALONG WITH ACCESSORIES FOR 750 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663118
12	COVER ALONG WITH ACCESSORIES FOR 600 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663126
13	COVER ALONG WITH ACCESSORIES FOR 450 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663134
14	COVER ALONG WITH ACCESSORIES FOR 300 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663142
15	COVER ALONG WITH ACCESSORIES FOR 150 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663150



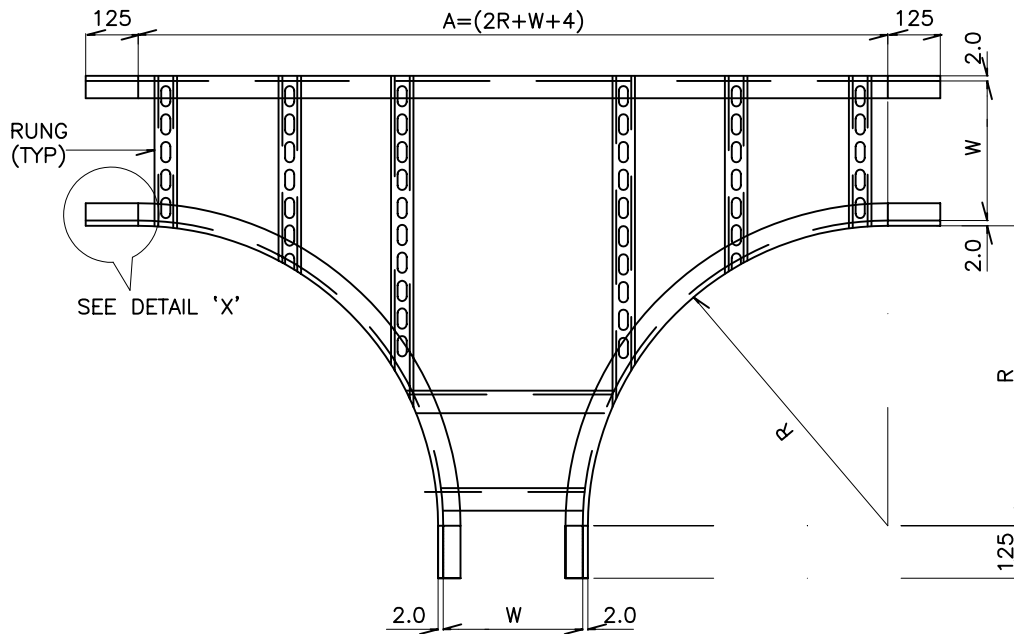
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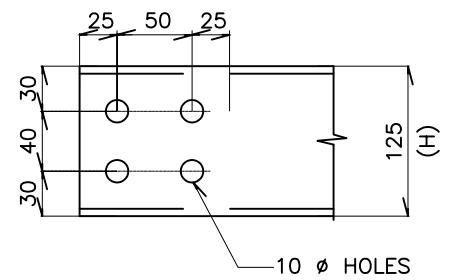
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TYPICAL ARRANGEMENT SHOWING DETAILS OF HORIZONTAL TEE FOR LADDER TYPE (CHANNEL) CABLE TRAYS-TYPE2



DIMENSIONAL DETAILS:

WIDTH OF TRAY (W)	DEPTH OF TRAY (H)	A=(2R+W+4)				
		R=450	R=600	R=900	R=1250	R=1500
150	100	1054	1354	NA	NA	NA
300	100	NA	1504	2104	NA	NA
450	100	NA	1654	2254	NA	NA
600	100	NA	NA	2404	3104	3604
750	100	NA	NA	2554	3254	3754



DETAIL-X

NOTES

1. LADDER TYPE (CHANNEL TYPE) HORIZONTAL "TEE" CABLE TRAY TYPE2 SHALL INCLUDE 4 SETS OF COUPLER PLATES ALONG WITH ACCESSORIES LIKE WASHERS, NUTS AND BOLTS AS SHOWN IN THE DRAWING.
2. ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONED, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
3. MATERIAL CODES FOR HORIZONTAL TEE WITH ACCESSORIES FOR VARIOUS TYPE OF LADDER TYPE (CHANNEL TYPE) CABLE TRAYS-TYPE2, ARE GIVEN IN THE FOLLOWING PAGE.
4. IN ORDER TO MAINTAIN PROPER EARTH CONTINUITY BOND, PAINTING ON SURFACES IN CONTACT BETWEEN COUPLER PLATES AND CABLE TRAY SHALL BE SCRAPPED AT THE TIME OF INSTALLATION.
5. THE DETAILS SHOWN IN THE DRAWING ARE TYPICAL FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS.

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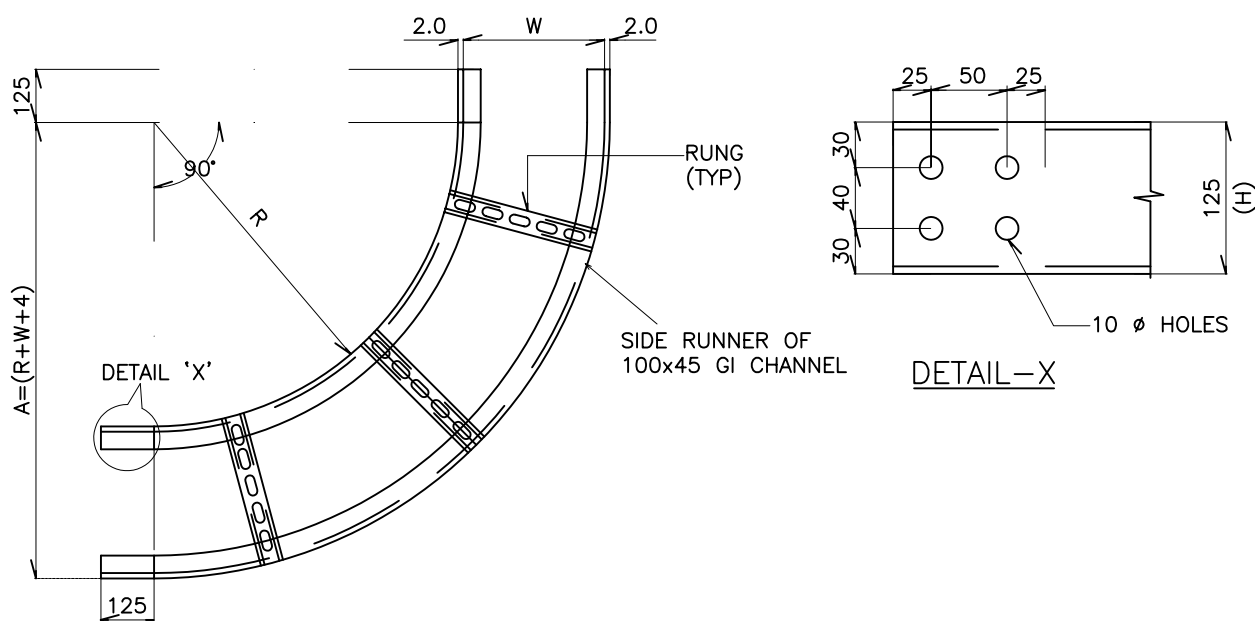


MATERIAL CODES FOR HORIZONTAL 'TEE' ALONG WITH ACCESSORIES

FOR LADDER TYPE (CHANNEL) CABLE TRAYS-TYPE2

VAR NO	DESCRIPTION	MATERIAL CODE
16	HORIZONTAL 'TEE' OF 450 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 150 mm WIDTH LADDER TYPE(CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663169
17	HORIZONTAL 'TEE' OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 150 mm WIDTH LADDER TYPE(CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663177
18	HORIZONTAL 'TEE' OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 300 mm WIDTH LADDER TYPE(CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663185
19	HORIZONTAL 'TEE' OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 300 mm WIDTH LADDER TYPE(CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663193
20	HORIZONTAL 'TEE' OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 450 mm WIDTH LADDER TYPE(CHANNEL TYPE)CABLE TRAY-TYPE2	HY7433663207
21	HORIZONTAL 'TEE' OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 450 mm WIDTH LADDER TYPE(CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663215
22	HORIZONTAL 'TEE' OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH LADDER TYPE(CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663223
23	HORIZONTAL 'TEE' OF 1250 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH LADDER TYPE(CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663231
24	HORIZONTAL 'TEE' OF 1500 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH LADDER TYPE(CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663240
25	HORIZONTAL 'TEE' OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH LADDER TYPE(CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663258
26	HORIZONTAL 'TEE' OF 1250 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH LADDER TYPE(CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663266
27	HORIZONTAL 'TEE' OF 1500 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH LADDER TYPE(CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663274

TYPICAL ARRANGEMENT FOR HORIZONTAL ELBOW 90°
FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS–TYPE2



DIMENSIONAL DETAILS:

WIDTH OF TRAY (W)	DEPTH OF TRAY (H)	A=(R+W+4)				
		R=450	R=600	R=900	R=1250	R=1500
150	100	604	754	NA	NA	NA
300	100	NA	904	1204	NA	NA
450	100	NA	1054	1354	NA	NA
600	100	NA	NA	1504	1854	2104
750	100	NA	NA	1654	2004	2254

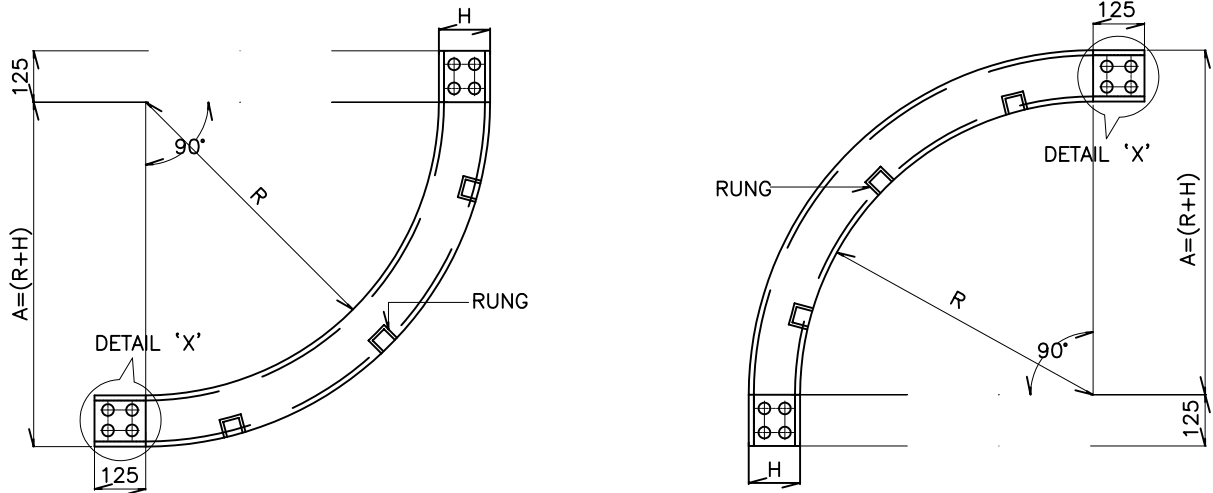
NOTES

1. LADDER TYPE (CHANNEL TYPE) HORIZONTAL 90° BEND CABLE TRAY TYPE2 INCLUDES SUPPLY OF 2 SETS OF COUPLER PLATES ALONG WITH ACCESSORIES LIKE WASHERS, NUTS AND BOLTS AS SHOWN IN THE DRAWING.
2. ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONED, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
3. MATERIAL CODES FOR HORIZONTAL ELBOW 90° WITH ACCESSORIES FOR VARIOUS TYPE OF LADDER TYPE (CHANNEL TYPE) CABLE TRAYS–TYPE2, ARE GIVEN IN THE FOLLOWING PAGE.
4. IN ORDER TO MAINTAIN PROPER EARTH CONTINUITY BOND, PAINTING ON SURFACES IN CONTACT BETWEEN COUPLER PLATES AND CABLE TRAY SHALL BE SCRAPPED AT THE TIME OF INSTALLATION.
5. THE DETAILS SHOWN IN THE DRAWING ARE TYPICAL FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS.

MATERIAL CODES FOR 90° HORIZONTAL BEND ALONG WITH ACCESSORIES
FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS–TYPE2

VAR NO	DESCRIPTION	MATERIAL CODE
28	HORIZONTAL BEND OF 450 mm BENDING RADIUS ALONG COUPLER PLATE FOR 150 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663282
29	HORIZONTAL BEND OF 600 mm BENDING RADIUS ALONG COUPLER PLATE FOR 150 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663290
30	HORIZONTAL BEND OF 600 mm BENDING RADIUS ALONG COUPLER PLATE FOR 300 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663304
31	HORIZONTAL BEND OF 900 mm BENDING RADIUS ALONG COUPLER PLATE FOR 300 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663312
32	HORIZONTAL BEND OF 600 mm BENDING RADIUS ALONG COUPLER PLATE FOR 450 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663320
33	HORIZONTAL BEND OF 900 mm BENDING RADIUS ALONG COUPLER PLATE FOR 450 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663339
34	HORIZONTAL BEND OF 900 mm BENDING RADIUS ALONG COUPLER PLATE FOR 600 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663347
35	HORIZONTAL BEND OF 1250 mm BENDING RADIUS ALONG COUPLER PLATE FOR 600 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663355
36	HORIZONTAL BEND OF 1500 mm BENDING RADIUS ALONG COUPLER PLATE FOR 600 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663363
37	HORIZONTAL BEND OF 900 mm BENDING RADIUS ALONG COUPLER PLATE FOR 750 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663371
38	HORIZONTAL BEND OF 1250 mm BENDING RADIUS ALONG COUPLER PLATE FOR 750 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663380
39	HORIZONTAL BEND OF 1500 mm BENDING RADIUS ALONG COUPLER PLATE FOR 750 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663398

TYPICAL ARRANGEMENT FOR VERTICAL ELBOW 90° UP & DOWN
FOR LADDER CABLE (CHANNEL TYPE) TRAYS–TYPE2



VERTICAL ELBOW 90° UP / DOWN

DIMENSIONAL DETAILS:

WIDTH OF TRAY (W)	DEPTH OF TRAY (H)	A=(R+H)				
		R=450	R=600	R=900	R=1250	R=1500
150	100	550	700	NA	NA	NA
300	100	NA	700	1000	NA	NA
450	100	NA	700	1000	NA	NA
600	100	NA	NA	1000	1350	1600
750	100	NA	NA	1000	1350	1600

NOTES

1. LADDER TYPE (CHANNEL TYPE) VERTICAL ELBOW UP/DOWN CABLE TRAY TYPE2 INCLUDES SUPPLY OF 2 SETS OF COUPLER PLATES ALONG WITH ACCESSORIES LIKE WASHERS, NUTS AND BOLTS AS SHOWN IN THE DRAWING.
2. ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONED, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
3. MATERIAL CODES FOR HORIZONTAL ELBOW 90° WITH ACCESSORIES FOR VARIOUS TYPE OF LADDER TYPE (CHANNEL TYPE) CABLE TRAYS–TYPE2, ARE GIVEN IN THE FOLLOWING PAGE.
4. IN ORDER TO MAINTAIN PROPER EARTH CONTINUITY BOND, PAINTING ON SURFACES IN CONTACT BETWEEN COUPLER PLATES AND CABLE TRAY SHALL BE SCRAPPED AT THE TIME OF INSTALLATION.
5. THE DETAILS SHOWN IN THE DRAWING ARE TYPICAL FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS.

MATERIAL CODES FOR 90° VERTICAL UP/DOWN ALONG WITH ACCESSORIES
FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS–TYPE2

VAR NO	DESCRIPTION	MATERIAL CODE
40	VERTICAL UP OF 450 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR PLATES FOR 150 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663401
41	VERTICAL DOWN OF 450 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 150 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663410
42	VERTICAL UP OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 150 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663428
43	VERTICAL DOWN OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 150 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663436
44	VERTICAL UP OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 300 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY–TYPE2	HY7433663444
45	VERTICAL DOWN OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 300 mm WIDTH LADDER TYPE (CHANNEL TYPE)CABLE TRAY–TYPE2	HY7433663452
46	VERTICAL UP OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 300 mm WIDTH LADDER TYPE (CHANNEL TYPE)CABLE TRAY–TYPE2	HY7433663460
47	VERTICAL DOWN OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 300 mm WIDTH LADDER TYPE (CHANNEL TYPE)CABLE TRAY–TYPE2	HY7433663479
48	VERTICAL UP OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 450 mm WIDTH LADDER TYPE (CHANNEL TYPE)CABLE TRAY–TYPE2	HY7433663487
49	VERTICAL DOWN OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 450 mm WIDTH LADDER TYPE (CHANNEL TYPE)CABLE TRAY–TYPE2	HY7433663495
50	VERTICAL UP OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 450 mm WIDTH LADDER TYPE (CHANNEL TYPE)CABLE TRAY–TYPE2	HY7433663509
51	VERTICAL DOWN OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 450 mm WIDTH LADDER TYPE (CHANNEL TYPE)CABLE TRAY–TYPE2	HY7433663517



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HYDERABAD

HY7433663

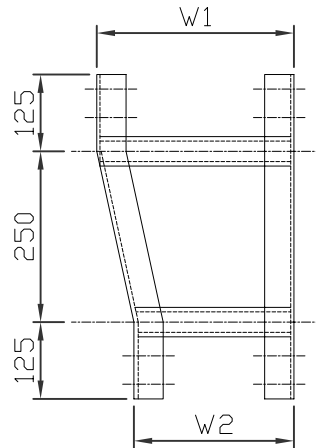
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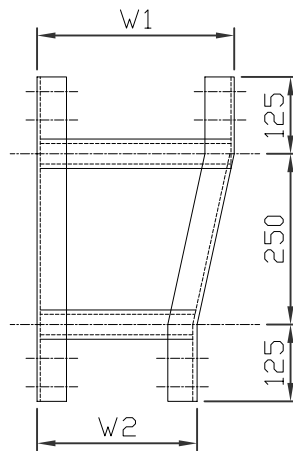
MATERIAL CODES FOR 90° VERTICAL UP/DOWN ALONG WITH ACCESSORIES
FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS–TYPE2

VAR NO	DESCRIPTION	MATERIAL CODE
52	VERTICAL UP OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 600 mm WIDTH LADDER TYPE CABLE TRAY–TYPE2	HY7433663525
53	VERTICAL DOWN OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 600 mm WIDTH LADDER TYPE CABLE TRAY–TYPE2	HY7433663533
54	VERTICAL UP OF 1250 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 600 mm WIDTH LADDER TYPE CABLE TRAY–TYPE2	HY7433663541
55	VERTICAL DOWN OF 1250 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 600 mm WIDTH LADDER TYPE CABLE TRAY–TYPE2	HY7433663550
56	VERTICAL UP OF 1500 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 600 mm WIDTH LADDER TYPE CABLE TRAY–TYPE2	HY7433663568
57	VERTICAL DOWN OF 1500 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 600 mm WIDTH LADDER TYPE CABLE TRAY–TYPE2	HY7433663576
58	VERTICAL UP OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 750 mm WIDTH LADDER TYPE CABLE TRAY–TYPE2	HY7433663584
59	VERTICAL DOWN OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 750 mm WIDTH LADDER TYPE CABLE TRAY–TYPE2	HY7433663592
60	VERTICAL UP OF 1250 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 750 mm WIDTH LADDER TYPE CABLE TRAY–TYPE2	HY7433663606
61	VERTICAL DOWN OF 1250 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 750 mm WIDTH LADDER TYPE CABLE TRAY–TYPE2	HY7433663614
62	VERTICAL UP OF 1500 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 750 mm WIDTH LADDER TYPE CABLE TRAY–TYPE2	HY7433663622
63	VERTICAL DOWN OF 1500 mm BENDING RADIUS ALONG WITH COUPLER PLATES PLATES FOR 750 mm WIDTH LADDER TYPE CABLE TRAY–TYPE2	HY7433663630

TYPICAL ARRANGEMENT FOR CABLE TRAY REDUCERS ALONG WITH
DETAILS OF COUPLER PLATES FOR LADDER TYPE (CHANNEL) CABLE TRAYS–TYPE2



RIGHT HAND REDUCER



LEFT HAND REDUCER

NOTES

- REDUCER FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAY TYPE2, INCLUDES SUPPLY OF 1 SET OF COUPLER PLATES ALONG WITH ACCESSORIES LIKE WASHERS, NUTS AND BOLTS AS SHOWN IN THE DRAWING.
- ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONED, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
- MATERIAL CODES FOR REDUCERS WITH ACCESSORIES FOR VARIOUS TYPE OF LADDER TYPE (CHANNEL TYPE) CABLE TRAYS–TYPE2, ARE GIVEN IN THE FOLLOWING PAGE.
- IN ORDER TO MAINTAIN PROPER EARTH CONTINUITY BOND, PAINTING ON SURFACES IN CONTACT BETWEEN COUPLER PLATES AND CABLE TRAY SHALL BE SCRAPPED AT THE TIME OF INSTALLATION.
- THE DETAILS SHOWN IN THE DRAWING ARE TYPICAL FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS.



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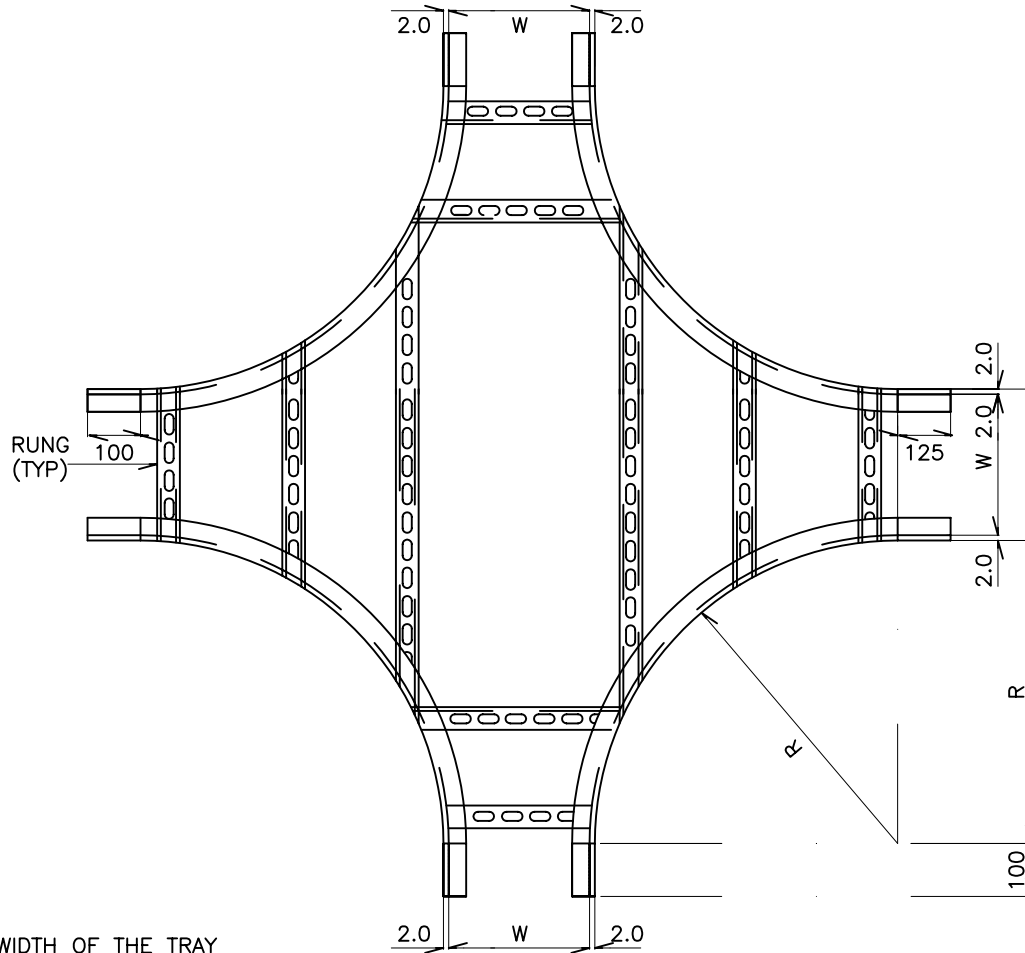
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MATERIAL CODES FOR CABLE TRAY REDUCERS ALONG WITH ACCESSORIES &
COUPLER PLATES FOR LADDER CABLE (CHANNEL TYPE) TRAYS-TYPE2

VAR NO	DESCRIPTION	MATERIAL CODE
64	750 mm TO 600MM RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS-TYPE2.	HY7433663649
65	750 mm TO 600 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS-TYPE2.	HY7433663657
66	750 mm TO 450 mm RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS-TYPE2.	HY7433663665
67	750 mm TO 450 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS-TYPE2.	HY7433663673
68	750 mm TO 300 mm RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE) CABLE TRAYS-TYPE2.	HY7433663681
69	750 mm TO 300 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE)CABLE TRAYS-TYPE2.	HY7433663690
70	600 mm TO 450 mm RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE)CABLE TRAYS-TYPE2.	HY7433663703
71	600 mm TO 450 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE)CABLE TRAYS-TYPE2.	HY7433663711
72	600 mm TO 300 mm RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE)CABLE TRAYS-TYPE2.	HY7433663720
73	600 mm TO 300 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE)CABLE TRAYS-TYPE2.	HY7433663738
74	600 mm TO 150 mm RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE)CABLE TRAYS-TYPE2.	HY7433663746
75	600 mm TO 150 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE)CABLE TRAYS-TYPE2.	HY7433663754
76	450 mm TO 300 mm RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE)CABLE TRAYS-TYPE2.	HY7433663762
77	450 mm TO 300 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE)CABLE TRAYS-TYPE2.	HY7433663770
78	450MM TO 150MM RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE)CABLE TRAYS-TYPE2.	HY7433663789
79	450MM TO 150MM LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE)CABLE TRAYS-TYPE2.	HY7433663797
80	300MM TO 150MM RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE)CABLE TRAYS-TYPE2.	HY7433663800
81	300MM TO 150MM LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR LADDER TYPE (CHANNEL TYPE)CABLE TRAYS-TYPE2.	HY7433663819

TYPICAL ARRANGEMENT FOR CROSS CABLE ALONG WITH ACCESSORIES
AND COUPLER PLATES FOR LADDER TYPE (CHANNEL) CABLE TRAYS–TYPE2



W–INSIDE WIDTH OF THE TRAY

R–BENDING RADIUS OF THE TRAY

NOTES

1. CROSS FOR LADDER TYPE (CHANNEL) CABLE TRAY TYPE 2, SHALL INCLUDE 4 SETS OF COUPLER PLATES ALONG WITH ACCESSORIES LIKE NUTS, BOLTS AND WASHERS, AS SHOWN IN THE DRAWING.
2. ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONED, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
3. MATERIAL CODES FOR REDUCERS WITH ACCESSORIES FOR VARIOUS TYPE OF LADDER TYPE (CHANNEL) CABLE TRAYS–TYPE2, ARE GIVEN IN THE FOLLOWING PAGE.
4. IN ORDER TO MAINTAIN PROPER EARTH CONTINUITY BOND, PAINTING ON SURFACES IN CONTACT BETWEEN COUPLER PLATES AND CABLE TRAY SHALL BE SCRAPPED AT THE TIME OF INSTALLATION.
5. THE DETAILS SHOWN IN THE DRAWING ARE TYPICAL CROSS FOR LADDER TYPE (CHANNEL)–TYPE2 CABLE TRAYS.



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MATERIAL CODES FOR CROSS CABLE ALONG WITH ACCESSORIES
AND COUPLER PLATES FOR LADDER TYPE (CHANNEL) CABLE TRAYS-TYPE2

VAR NO	DESCRIPTION	MATERIAL CODE
82	HORIZONTAL CROSS OF 450 mm BENDING RADIUS ALONG COUPLER PLATES FOR 150 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663827
83	HORIZONTAL CROSS OF 600 mm BENDING RADIUS ALONG COUPLER PLATES FOR 150 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663835
84	HORIZONTAL CROSS OF 600 mm BENDING RADIUS ALONG COUPLER PLATES FOR 300 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663843
85	HORIZONTAL CROSS OF 900 mm BENDING RADIUS ALONG COUPLER PLATES FOR 300 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663851
86	HORIZONTAL CROSS OF 600 mm BENDING RADIUS ALONG COUPLER PLATES FOR 450 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663860
87	HORIZONTAL CROSS OF 900 mm BENDING RADIUS ALONG COUPLER PLATES FOR 450 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663878
88	HORIZONTAL CROSS OF 900 mm BENDING RADIUS ALONG COUPLER PLATES FOR 600 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663886
89	HORIZONTAL CROSS OF 1250 mm BENDING RADIUS ALONG COUPLER PLATES FOR 600 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663894
90	HORIZONTAL CROSS OF 1500 mm BENDING RADIUS ALONG COUPLER PLATES FOR 600 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663908
91	HORIZONTAL CROSS OF 900 mm BENDING RADIUS ALONG COUPLER PLATES FOR 750 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663916
92	HORIZONTAL CROSS OF 1250 mm BENDING RADIUS ALONG COUPLER PLATES FOR 750 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663924
93	HORIZONTAL CROSS OF 1500 mm BENDING RADIUS ALONG COUPLER PLATES FOR 750 mm WIDTH LADDER TYPE (CHANNEL TYPE) CABLE TRAY-TYPE2	HY7433663932



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GI PERFORATED TYPE CABLE TRAYS AND ACCESSORIES

1. This standard shall be read in conjunction with BHEL plant standard no. HY7433661, GI cable trays and accessories.

This standard covers the constructional, dimensional and sectional details of various types of GI perforated type cable trays and accessories and same are given in the following pages.

Revisions:
Document is revised generally.

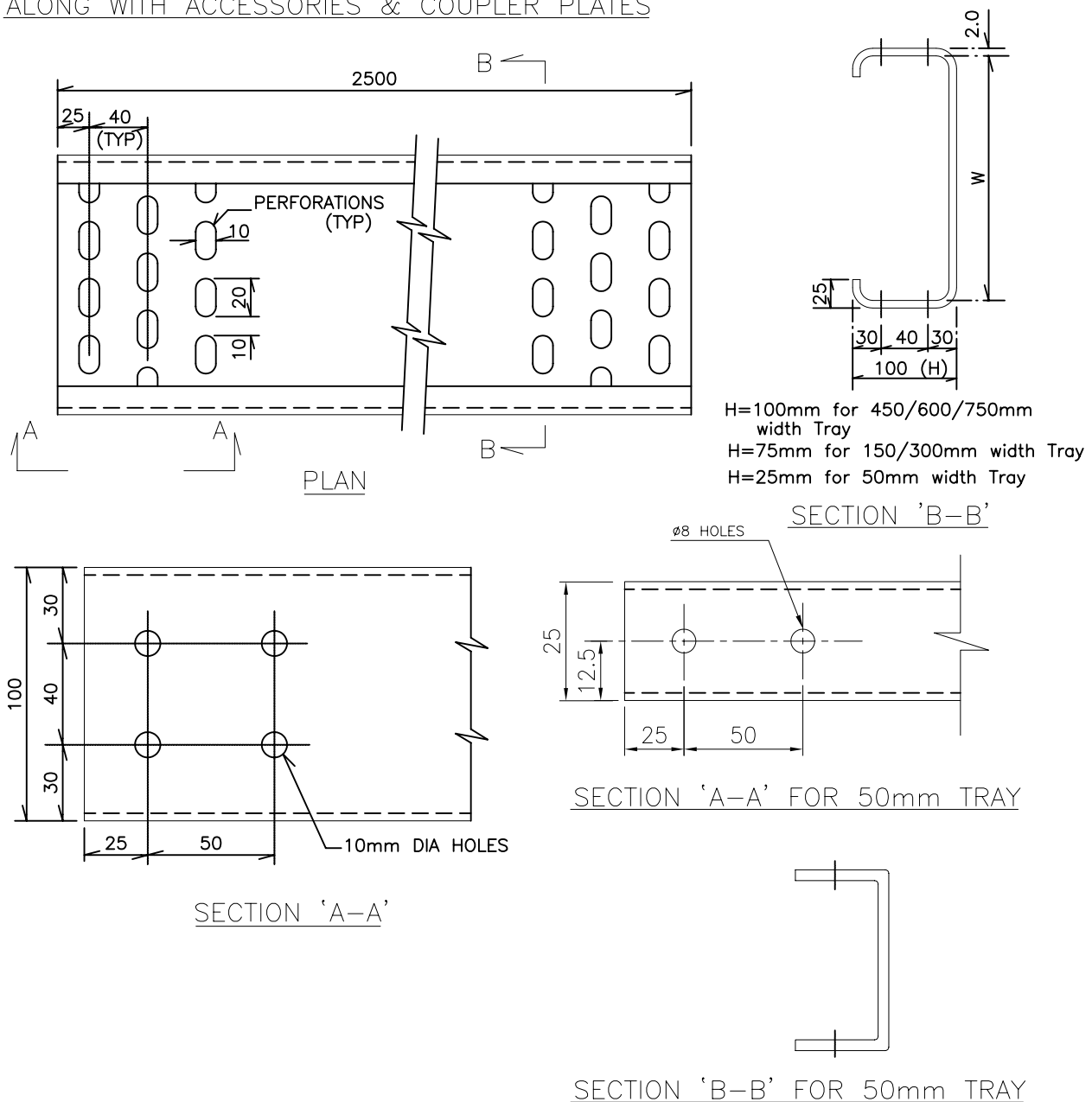
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Dt. Apr 2007	Dt.	Year:			APR., 2006

PLANT STANDARD HYDERABAD



TYPICAL ARRANGEMENT FOR PERFORATED TYPE STRAIGHT RUN CABLE TRAY ALONG WITH ACCESSORIES & COUPLER PLATES



NOTES

1. HEIGHT OF TRAY SIDE WALLS INDICATED HERE (100mm) IS TYPICAL ONLY. BIDDER MAY PLEASE INDICATE THE SAME AS PER THEIR STANDARD PRODUCTS AVAILABLE, SUITABLE FOR TRAYS OF 150/300/600MM.
2. HOWEVER RESERVES THE RIGHT TO DECIDE THE HEIGHT OF SIDE RAILS AND SAME TO BE INCORPORATED BY BIDDERS.
3. STRAIGHT RUN FOR PERFORATED TYPE CABLE TRAY, SHALL INCLUDE 2 Sets OF COUPLER PLATES ALONG WITH ACCESSORIES LIKE NUTS, BOLTS AND WASHERS, DETAILS OF THE SAME IS ATTACHED IN SHEET No 4 OF 18.
4. ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONS, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
5. MATERIAL CODES FOR VARIOUS PERFORATED TYPE STRAIGHT RUN CABLE TRAY ARE GIVEN IN THE FOLLOWING PAGE
6. THE DETAILS SHOWN IN THE DRAWING ARE TYPICAL FOR PERFORATED TYPE CABLE TRAYS.



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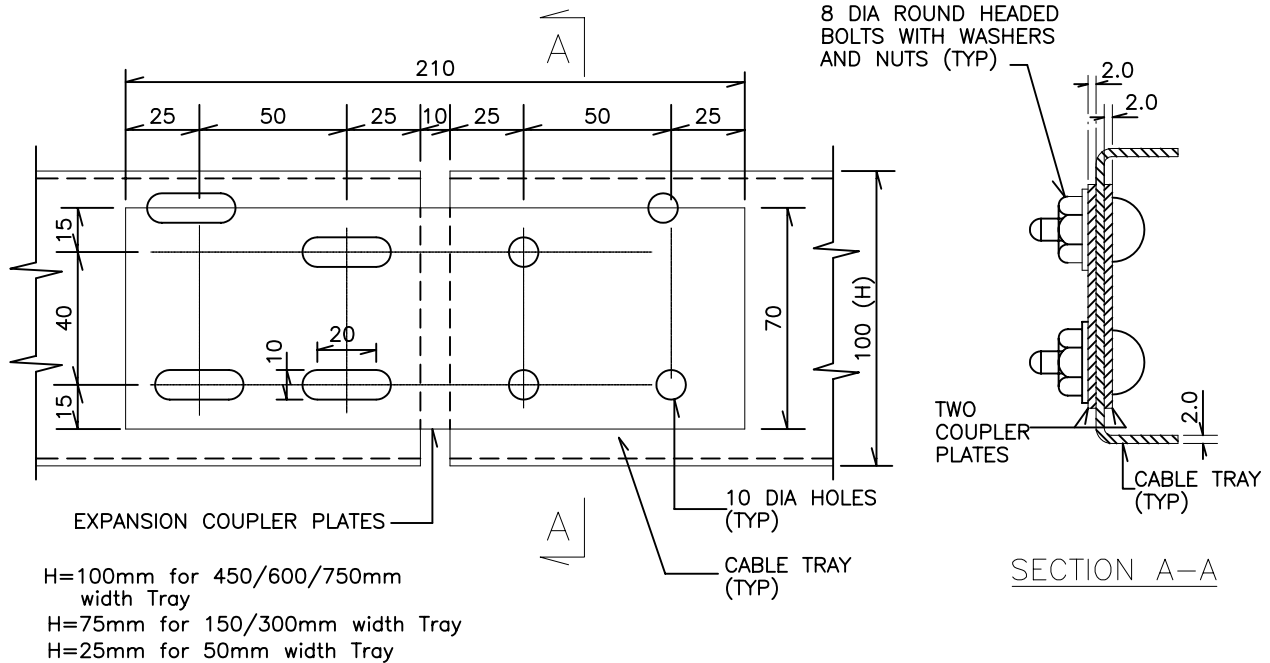
MATERIAL CODES FOR PERFORATED TYPE STRAIGHT RUN CABLE TRAY
ALONG WITH ACCESSORIES AND COUPLER PLATES

VAR NO	DESCRIPTION	MATERIAL CODE
01	750 mm WIDTH PERFORATED TYPE STRAIGHT RUN CABLE TRAY ALONG WITH ACCESSORIES INCLUDING COUPLER PLATES	HY7433665013
02	600 mm WIDTH PERFORATED TYPE STRAIGHT RUN CABLE TRAY ALONG WITH ACCESSORIES INCLUDING COUPLER PLATES	HY7433665021
03	450 mm WIDTH PERFORATED TYPE STRAIGHT RUN CABLE TRAY ALONG WITH ACCESSORIES INCLUDING COUPLER PLATES	HY7433665030
04	300 mm WIDTH PERFORATED TYPE STRAIGHT RUN CABLE TRAY ALONG WITH ACCESSORIES INCLUDING COUPLER PLATES	HY7433665048
05	150 mm WIDTH PERFORATED TYPE STRAIGHT RUN CABLE TRAY ALONG WITH ACCESSORIES INCLUDING COUPLER PLATES	HY7433665056
06	50 mm WIDTH PERFORATED TYPE STRAIGHT RUN CABLE TRAY ALONG WITH ACCESSORIES INCLUDING COUPLER PLATES	HY7433665064

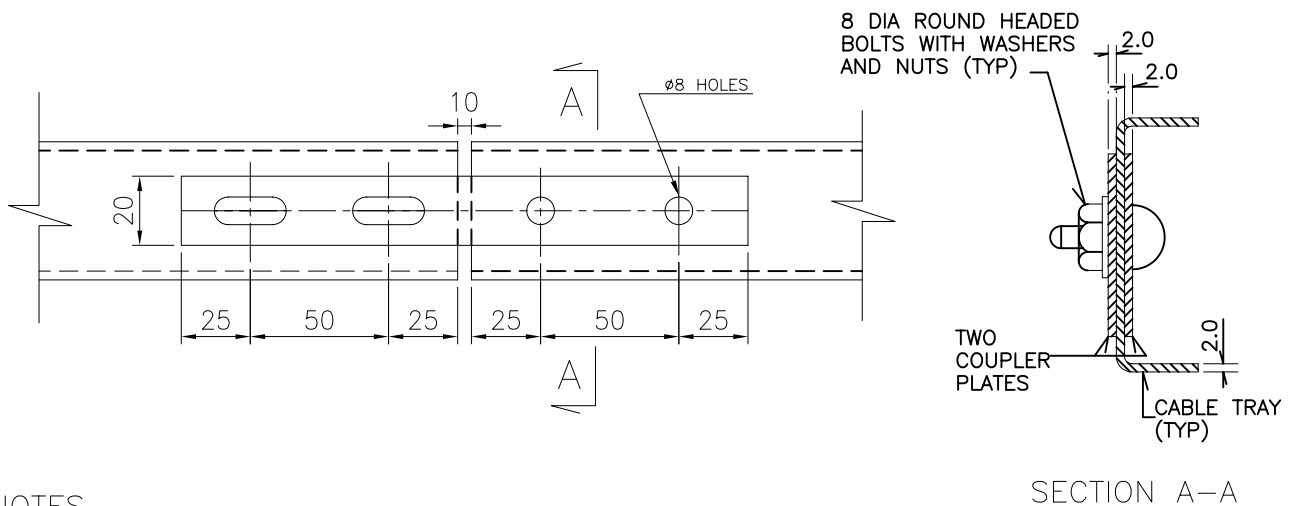
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TYPICAL ARRANGEMENT FOR COUPLER PLATE SET ALONG WITH ACCESSORIES FOR PERFORATED TYPE CABLE TRAYS



TYPICAL ARRANGEMENT FOR COUPLER PLATE SET ALONG WITH ACCESSORIES FOR 50mm PERFORATED TYPE CABLE TRAYS



NOTES

1. ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONS, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
2. TWO COUPLER PLATES TO BE PROVIDED ONE EACH ON EITHER SIDE OF TRAY.
3. ONE SET OF COUPLER PLATE WITH ACCESSORIES SHALL INCLUDE 2No. OF COUPLER PLATES 8No. OF NUTS, BOLTS AND WASHERS AS SHOWN IN THE DRAWING
4. MATERIAL CODES FOR LOOSE SUPPLY OF COUPLER PLATE WITH ACCESSORIES FOR VARIOUS TYPES OF PERFORATED TYPE CABLE TRAYS, ARE GIVEN IN THE FOLLOWING PAGE.



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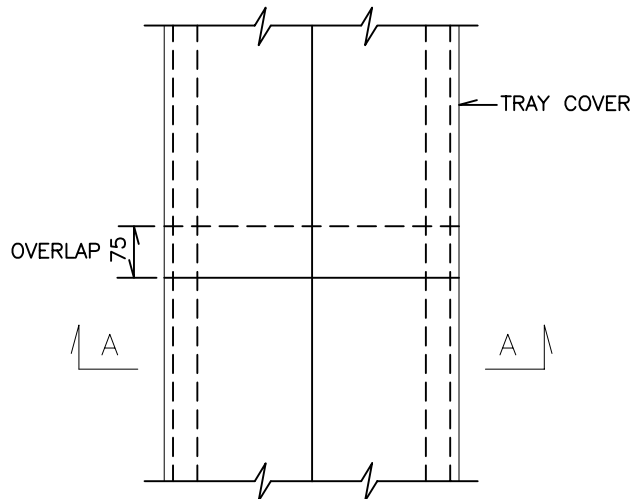
MATERIAL CODES FOR COUPLER PLATE SETS INCLUDING ACCESSORIES
FOR PERFORATED TYPE CABLE TRAYS (IN CASE OF LOOSE SUPPLY)

VAR NO	DESCRIPTION	MATERIAL CODE
07	COUPLER PLATES SET ALONG WITH ACCESSORIES FOR 750 mm PERFORATED TYPE CABLE TRAY	HY7433665072
08	COUPLER PLATES SET ALONG WITH ACCESSORIES FOR 600 mm PERFORATED TYPE CABLE TRAY	HY7433665080
09	COUPLER PLATES SET ALONG WITH ACCESSORIES FOR 450 mm PERFORATED TYPE CABLE TRAY	HY7433665099
10	COUPLER PLATES SET ALONG WITH ACCESSORIES FOR 300 mm PERFORATED TYPE CABLE TRAY	HY7433665102
11	COUPLER PLATES SET ALONG WITH ACCESSORIES FOR 150 mm PERFORATED TYPE CABLE TRAY	HY7433665110
12	COUPLER PLATES SET ALONG WITH ACCESSORIES FOR 50 mm PERFORATED TYPE CABLE TRAY	HY7433665129

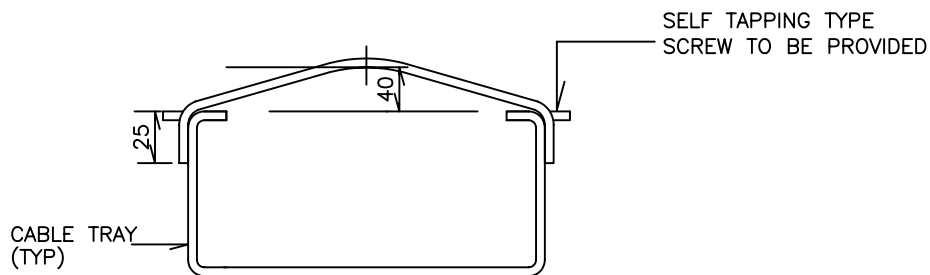
PLANT STANDARD HYDERABAD



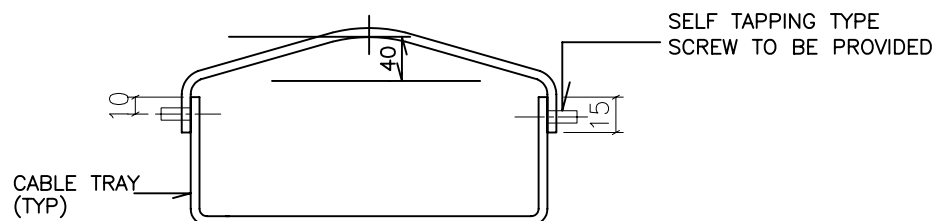
TYPICAL ARRANGEMENT FOR CABLE TRAY COVER ALONG WITH ACCESSORIES FOR PERFORATED TYPE CABLE TRAYS



PLAN



SECTION 'A-A'



SECTION 'A-A' FOR 50mm TRAY

NOTES

1. CABLE TRAY COVER SHALL INCLUDE 1 No OF TRAY COVER OF 2500 mm LENGTH ALONG WITH 3Nos OF TOP CLAMP STRIP, 3Nos OF BOTTOM CLAMP STRIP AND 6Nos OF BOLTS ALONG WITH NUTS AND WASHERS.
2. ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONS, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
3. ALL THE ACCESSORIES EXCEPT NUTS AND BOLTS SHALL BE FABRICATED FROM 2mm THICK GI SHEET STEEL.
4. MATERIAL CODES FOR CABLE TRAY COVERS WITH ACCESSORIES FOR VARIOUS TYPE OF PERFORATED TYPE CABLE TRAYS, ARE GIVEN IN THE FOLLOWING PAGE.
5. THE DETAILS SHOWN IN THE DRAWING ARE TYPICAL FOR PERFORATED TYPE CABLE TRAYS.



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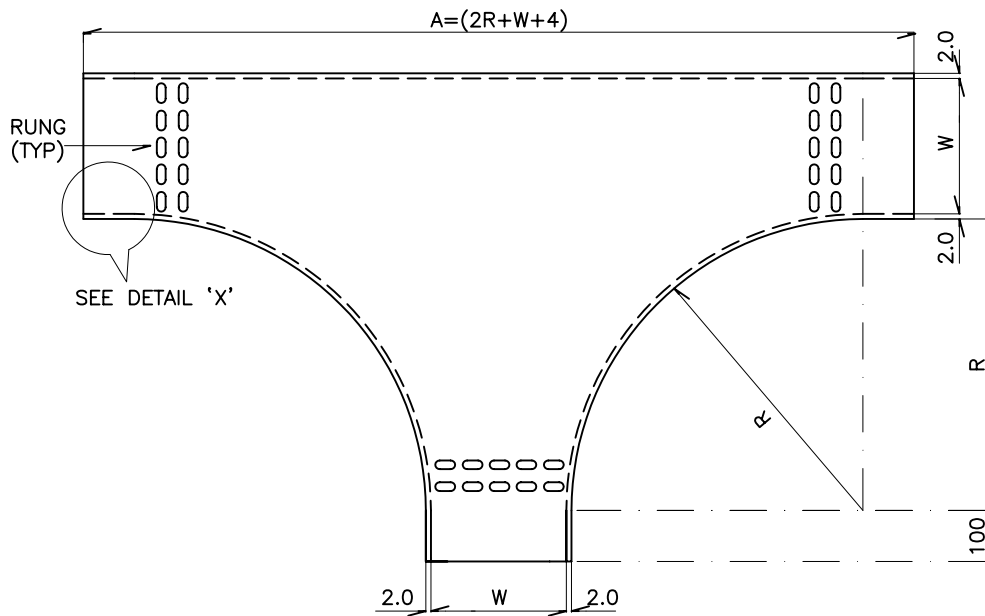
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MATERIAL CODES FOR TRAY COVERS ALONG WITH ACCESSORIES
FOR PERFORATD TYPE CABLE TRAYS

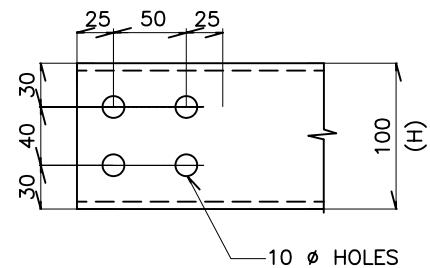
VAR NO	DESCRIPTION	MATERIAL CODE
13	COVER ALONG WITH ACCESSORIES FOR 750 mm WIDTH PERFORATD TYPE CABLE TRAY	HY7433665137
14	COVER ALONG WITH ACCESSORIES FOR 600 mm WIDTH PERFORATD TYPE CABLE TRAY	HY7433665145
15	COVER ALONG WITH ACCESSORIES FOR 450 mm WIDTH PERFORATD TYPE CABLE TRAY	HY7433665153
16	COVER ALONG WITH ACCESSORIES FOR 300 mm WIDTH PERFORATD TYPE CABLE TRAY	HY7433665161
17	COVER ALONG WITH ACCESSORIES FOR 150 mm WIDTH PERFORATD TYPE CABLE TRAY	HY7433665170
18	COVER ALONG WITH ACCESSORIES FOR 50 mm WIDTH PERFORATD TYPE CABLE TRAY	HY7433665188

TYPICAL ARRANGEMENT FOR HORIZONTAL TEE ALONG WITH ACCESSORIES
AND COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS



DIMENSIONAL DETAILS:

WIDTH OF TRAY (W)	HEIGHT OF TRAY (H)	A=(2R+W+4)					
		R=150	R=450	R=600	R=900	R=1250	R=1500
50	25	354	NA	NA	NA	NA	NA
150	75	NA	1054	1354	NA	NA	NA
300	75	NA	NA	1504	2104	NA	NA
450	100	NA	NA	1654	2254	NA	NA
600	100	NA	NA	NA	2404	3104	3604
750	100	NA	NA	NA	2554	3254	3754



DETAIL-X

NOTES

- HORIZONTAL "TEE" FOR PERFORATED TYPE CABLE TRAY, SHALL INCLUDE 4 SETS OF COUPLER PLATES ALONG WITH ACCESSORIES LIKE NUTS, BOLTS AND WASHERS AS SHOWN IN THE DRAWING.
- ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONS, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
- MATERIAL CODES FOR HORIZONTAL TEE WITH ACCESSORIES FOR VARIOUS TYPE OF PERFORATED CABLE TRAYS, ARE GIVEN IN THE FOLLOWING PAGE.
- THE DETAILS SHOWN IN THE DRAWING ARE TYPICAL FOR PERFORATED TYPE CABLE TRAYS.



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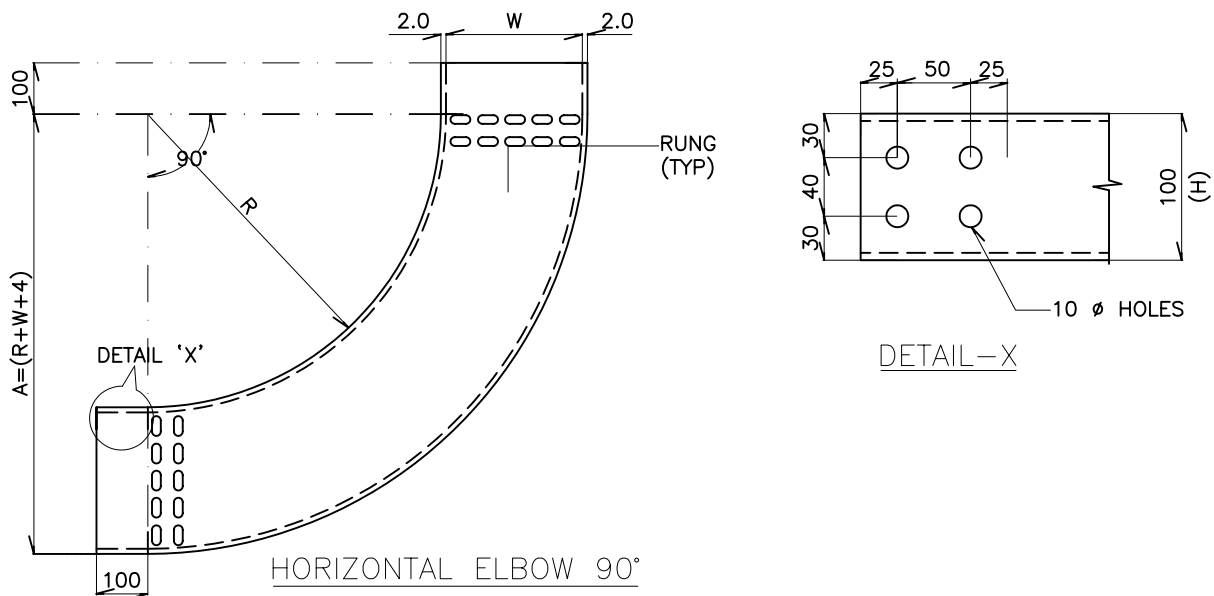
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MATERIAL CODES FOR HORIZONTAL "TEE" ALONG WITH ACCESSORIES AND
COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS

VAR NO	DESCRIPTION	MATERIAL CODE
19	HORIZONTAL 'TEE' OF 150mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 50 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665196
20	HORIZONTAL 'TEE' OF 450 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 150 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665200
21	HORIZONTAL 'TEE' OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 150 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665218
22	HORIZONTAL 'TEE' OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 300 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665226
23	HORIZONTAL 'TEE' OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 300 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665234
24	HORIZONTAL 'TEE' OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 450 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665242
25	HORIZONTAL 'TEE' OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 450 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665250
26	HORIZONTAL 'TEE' OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665269
27	HORIZONTAL 'TEE' OF 1250 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665277
28	HORIZONTAL 'TEE' OF 1500 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665285
29	HORIZONTAL 'TEE' OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665293
30	HORIZONTAL 'TEE' OF 1250 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665307
31	HORIZONTAL 'TEE' OF 1500 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665315

TYPICAL ARRANGEMENT FOR HORIZONTAL ELBOW 90° ALONG WITH ACCESSORIES AND COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS



DIMENSIONAL DETAILS:

WIDTH OF TRAY (W)	HEIGHT OF TRAY (H)	A=(R+W+4)					
		R=150	R=450	R=600	R=900	R=1250	R=1500
50	25	204	NA	NA	NA	NA	NA
150	75	NA	604	754	NA	NA	NA
300	75	NA	NA	904	1204	NA	NA
450	100	NA	NA	1054	1354	NA	NA
600	100	NA	NA	NA	1504	1854	2104
750	100	NA	NA	NA	1654	2004	2254

NOTES

- HORIZONTAL 90° ELBOW FOR PERFORATED TYPE CABLE TRAY, SHALL INCLUDE 2 SETS OF COUPLER PLATES ALONG WITH ACCESSORIES LIKE NUTS, BOLTS AND WASHERS AS SHOWN IN THE DRAWING.
- ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONS, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
- MATERIAL CODES FOR HORIZONTAL ELBOW 90° WITH ACCESSORIES FOR VARIOUS TYPE OF PERFORATED TYPE CABLE TRAYS, ARE GIVEN IN THE FOLLOWING PAGE.
- THE DETAILS SHOWN IN THE DRAWING ARE TYPICAL FOR PERFORATED TYPE CABLE TRAYS.



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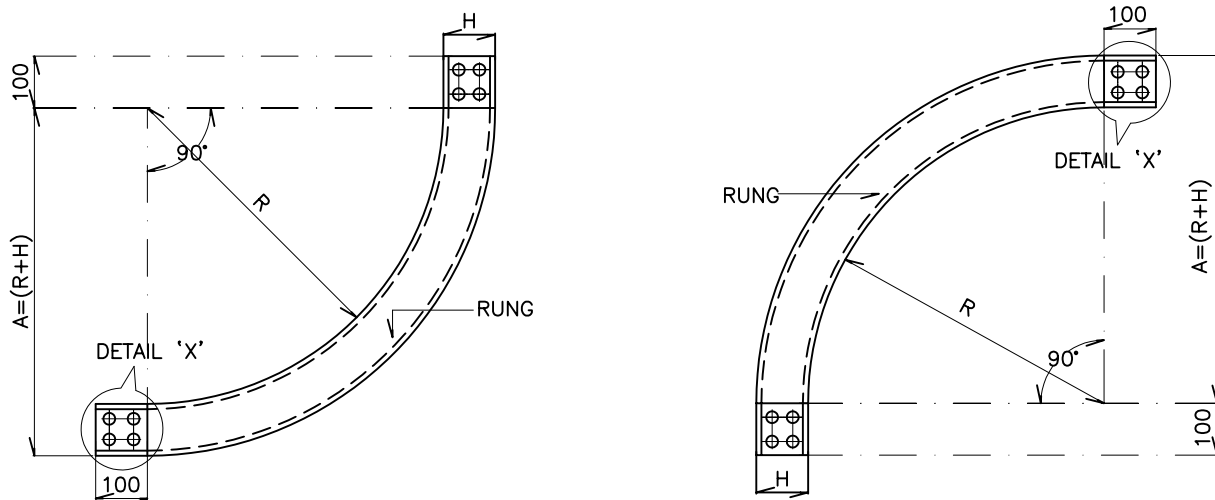
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MATERIAL CODES FOR 90° HORIZONTAL ELBOW 90° ALONG WITH ACCESSORIES
AND COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS

VAR NO	DESCRIPTION	MATERIAL CODE
32	HORIZONTAL BEND OF 150 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 50 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665323
33	HORIZONTAL BEND OF 450 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 150 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665331
34	HORIZONTAL BEND OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 150 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665340
35	HORIZONTAL BEND OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 300 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665358
36	HORIZONTAL BEND OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 300 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665366
37	HORIZONTAL BEND OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 450 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665374
38	HORIZONTAL BEND OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 450 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665382
39	HORIZONTAL BEND OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665390
40	HORIZONTAL BEND OF 1250 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665404
41	HORIZONTAL BEND OF 1500 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665412
42	HORIZONTAL BEND OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665420
43	HORIZONTAL BEND OF 1250 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665439
44	HORIZONTAL BEND OF 1500 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665447

TYPICAL ARRANGEMENT FOR VERTICAL ELBOW 90° UP/DOWN WITH ACCESSORIES
AND COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS



VERTICAL ELBOW 90° UP / DOWN

DIMENTIONAL DETAILS:

WIDTH OF TRAY (W)	HEIGHT OF TRAY (H)	A=(R+H)					
		R=150	R=450	R=600	R=900	R=1250	R=1500
50	25	175	NA	NA	NA	NA	NA
150	75	NA	525	675	NA	NA	NA
300	75	NA	NA	675	975	NA	NA
450	100	NA	NA	700	1000	NA	NA
600	100	NA	NA	NA	1000	1350	1600
750	100	NA	NA	NA	1000	1350	1600

NOTES

1. VERTICAL ELBOW 90° UP/DOWN FOR PERFORATED TYPE CABLE TRAY, SHALL INCLUDE 2 SETS OF COUPLER PLATES ALONG WITH ACCESSORIES LIKE WASHERS, NUTS AND BOLTS AS SHOWN IN THE DRAWING.
2. ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONS, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
3. MATERIAL CODES FOR HORIZONTAL ELBOW 90° WITH ACCESSORIES FOR VARIOUS TYPE OF PERFORATED TYPE CABLE TRAYS, ARE GIVEN IN THE FOLLOWING PAGE.
4. THE DETAILS SHOWN IN THE DRAWING ARE TYPICAL FOR PERFORATED TYPE CABLE TRAYS.



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MATERIAL CODES FOR 90° VERTICAL UP/DOWN ALONG WITH ACCESSORIES
AND COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS

VAR NO	DESCRIPTION	MATERIAL CODE
45	VERTICAL UP OF 150 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 50 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665455
46	VERTICAL DOWN OF 450 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 150 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665463
47	VERTICAL UP OF 450 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 150 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665471
48	VERTICAL DOWN OF 450 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 150 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665480
49	VERTICAL UP OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 150 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665498
50	VERTICAL DOWN OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 150 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665501
51	VERTICAL UP OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 300 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665510
52	VERTICAL DOWN OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 300 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665528
53	VERTICAL UP OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 300 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665536
54	VERTICAL DOWN OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 300 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665544
55	VERTICAL UP OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 450 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665552
56	VERTICAL DOWN OF 600 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 450 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665560
57	VERTICAL UP OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 450 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665579
58	VERTICAL DOWN OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 450 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665587

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MATERIAL CODES FOR 90° VERTICAL UP/DOWN ALONG WITH ACCESSORIES AND COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS

VAR NO	DESCRIPTION	MATERIAL CODE
59	VERTICAL UP OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665595
60	VERTICAL DOWN OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665609
61	VERTICAL UP OF 1250 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665617
62	VERTICAL DOWN OF 1250 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665625
63	VERTICAL UP OF 1500 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665633
64	VERTICAL DOWN OF 1500 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665641
65	VERTICAL UP OF 900 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665650
66	VERTICAL DOWN OF 900mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665668
67	VERTICAL UP OF 1250 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665676
68	VERTICAL DOWN OF 1250 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665684
69	VERTICAL UP OF 1500 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665692
70	VERTICAL DOWN OF 1500 mm BENDING RADIUS ALONG WITH COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665706

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MATERIAL CODES FOR CABLE TRAY REDUCERS ALONG WITH ACCESSORIES AND COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS

VAR NO	DESCRIPTION	MATERIAL CODE
71	750 mm TO 600 mm RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665714
72	750 mm TO 600 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665722
73	750 mm TO 450 mm RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665730
74	750 mm TO 450 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665749
75	600 mm TO 450 mm RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665757
76	600 mm TO 450 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665765
77	600 mm TO 300 mm RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665773
78	600 mm TO 300 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665781
79	450 mm TO 300 mm RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665790
80	450 mm TO 300 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665803
81	450 mm TO 150 mm RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665811
82	450 mm TO 150 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665820
83	300 mm TO 150 mm RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665838
84	300 mm TO 150 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665846
85	150 mm TO 50 mm RIGHT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665854
86	150 mm TO 50 mm LEFT HAND REDUCER ALONG WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS	HY7433665862



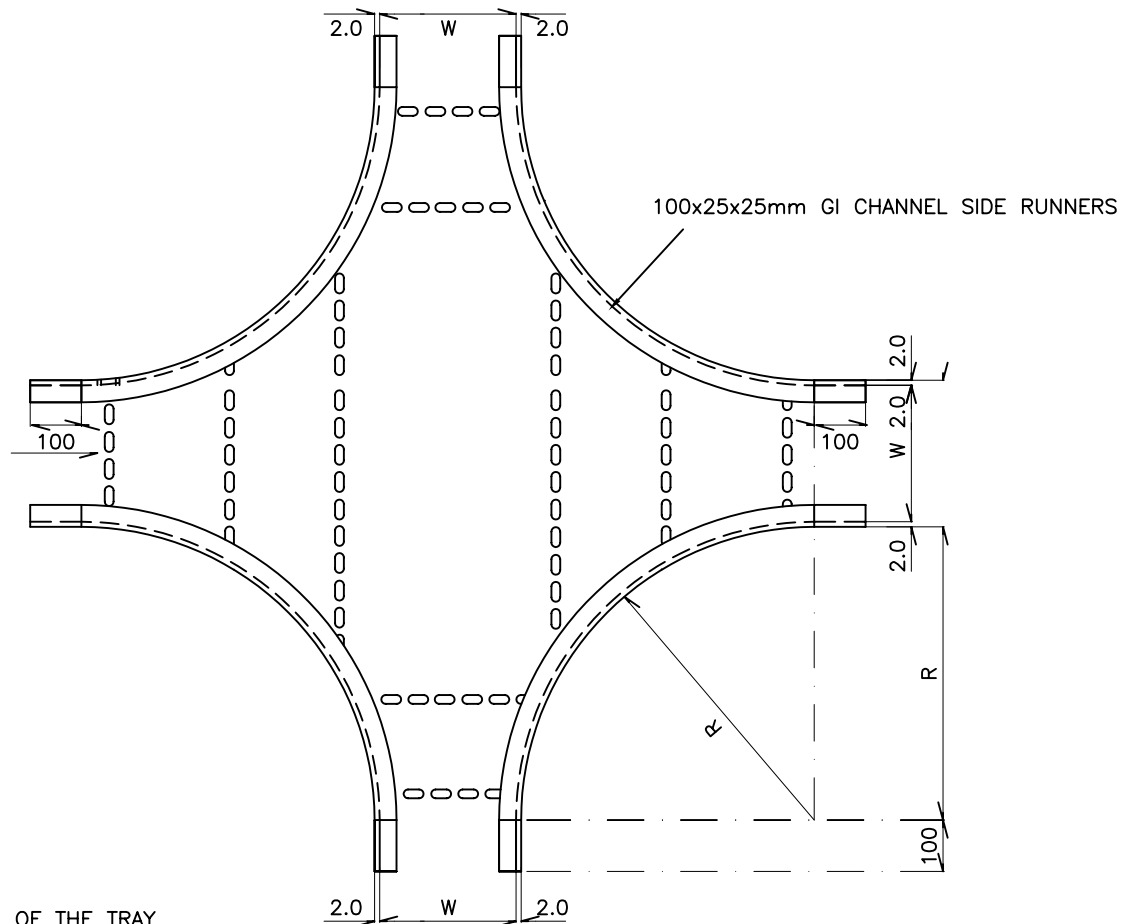
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TYPICAL ARRANGEMENT FOR CROSS CABLE ALONG WITH ACCESSORIES AND COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS



W—INSIDE WIDTH OF THE TRAY
R—BENDING RADIUS OF THE TRAY

NOTES

1. CROSS FOR PERFORATED TYPE CABLE TRAY, SHALL INCLUDE 4 SETS OF COUPLER PLATES ALONG WITH ACCESSORIES LIKE NUTS, BOLTS AND WASHERS, AS SHOWN IN THE DRAWING.
2. ALL DIMENSIONS ARE IN mm. PLEASE NOTE THAT NEGATIVE TOLERANCE IN ANY DIMENSIONS, ARE NOT ACCEPTABLE. HOWEVER A POSITIVE TOLERANCE OF +2mm CAN BE ACCEPTED.
3. MATERIAL CODES FOR REDUCERS WITH ACCESSORIES FOR VARIOUS TYPE OF PERFORATED TYPE CABLE TRAY, ARE GIVEN IN THE FOLLOWING PAGE.
4. THE DETAILS SHOWN IN THE DRAWING ARE TYPICAL CROSS FOR PERFORATED TYPE CABLE TRAYS.

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MATERIAL CODES FOR CROSS CABLE ALONG WITH ACCESSORIES AND COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS

VAR NO	DESCRIPTION	MATERIAL CODE
87	HORIZONTAL CROSS OF 150 mm BENDING RADIUS ALONG COUPLER PLATES FOR 50 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665870
88	HORIZONTAL CROSS OF 450 mm BENDING RADIUS ALONG COUPLER PLATES FOR 150 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665889
89	HORIZONTAL CROSS OF 600 mm BENDING RADIUS ALONG COUPLER PLATES FOR 150 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665897
90	HORIZONTAL CROSS OF 600 mm BENDING RADIUS ALONG COUPLER PLATES FOR 300 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665900
91	HORIZONTAL CROSS OF 900 mm BENDING RADIUS ALONG COUPLER PLATES FOR 300 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665919
92	HORIZONTAL CROSS OF 600 mm BENDING RADIUS ALONG COUPLER PLATES FOR 450 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665927
93	HORIZONTAL CROSS OF 900 mm BENDING RADIUS ALONG COUPLER PLATES FOR 450 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665935
94	HORIZONTAL CROSS OF 900 mm BENDING RADIUS ALONG COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665943
95	HORIZONTAL CROSS OF 1250 mm BENDING RADIUS ALONG COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665951
96	HORIZONTAL CROSS OF 1500 mm BENDING RADIUS ALONG COUPLER PLATES FOR 600 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665960
97	HORIZONTAL CROSS OF 900 mm BENDING RADIUS ALONG COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665978
98	HORIZONTAL CROSS OF 1250 mm BENDING RADIUS ALONG COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665986
99	HORIZONTAL CROSS OF 1500 mm BENDING RADIUS ALONG COUPLER PLATES FOR 750 mm WIDTH PERFORATED TYPE CABLE TRAY	HY7433665994

In the technical bid of the bidder, following shall be clearly informed about Galvanization facility:

1. Does the Vendor have an In-house galvanization facility. If so Vendor to provide details of Galvanizing facility.

2. If Vendor doesn't have In-house Galvanization facility, then vendor should confirm that Vendor shall get the Cable trays Galvanized from the following BHEL list of approved vendors only.

SL. NO.	ITEM	VENDOR NAME	ADDRESS
1	Galvanising	Jenco Industrial Corporation	Chincholi Bunder Khkar Road Near Link Road Devruwadi Malad (W) Mumbai 400064
2	Galvanising	National Galvanizing Company	66, Barrackpore Kamarhatt Trunck Road Calcutta-700058
3	Galvanising	Sigma Galvanising Pvt. Ltd.	Plot No.C-169, TTC, MIDC Ind Area Navin Mumbai-400705
4	Galvanising	B.P. Projects PVT LTD	167A, Vivekananda Road Kolkata-700006
5	Galvanising	Standard Galvanisers	Makardah Road, Kabar Para, Bankra, Howarah -711403
6	Galvanising	Steel Products	National Highway No. 6, Chamrail, Kona, Howrah-711114
7	Galvanising	Unitech Fabricators & Engineers Pvt. Ltd.	Village- Ajab Nagar, P.O. -Molla Simlla, P.S. - Singur, Dist - Hoogly, Pin-712223
8	Galvanising	Shivam Engineers & Fabricators	A0-282-284, Industrial Area, South Side of G.T. Road, Ghaziabad, U.P.
9	Galvanising	B.G. Shirke Construction Technology Pvt. Ltd	72-76, Mundhawa, Pune - 401 036
10	Galvanising	Galbro Ispat Galvanizers Pvt. Ltd.	GUT 11 AND 12, OPP. Kudus Steel,Rolling Mill, Wada, Thane , Mumbai
11	Galvanising	Eros Metals	G-97, MIDC, Bhutibori , Nagpur
12	Galvanising	Industrial Perforation (India) Pvt. Ltd.	Ganganagr, Katakhal, Kolkata-700132
13	Galvanising	Indmark Formtech Pvt. Ltd.	Phase - 3, E - 11 / 1, M. I. D. C., Chakan, Pune - 410 501, Maharashtra, India.
14	Galvanising	Namdhari Industrial Traders Pvt. Ltd.	Village Latton Dana, Chandigarh Road, Ludhiana
15	Galvanising	Neha Galvaniser	Jalan Industrial Estate, Gate No-1, 1st Right Choise Lane, Near N.G-6, Jangalpur, PO Domjur Howrah - 700071, West Bengal, India
16	Galvanising	Patny Systems (P) Ltd.	Unit-IV, Sy No. -228/9, Plot No. 6, IP Kuchavaram, Toopran(M) Dist.- Medak, Telegana - 502336
17	Galvanising	Parmar Metal Company	Survey No.207,Veraval (Shapar) Dist. Rajkot, India.
18	Galvanising	Passive Infra Projects Pvt. Ltd	8th KM Stone, Sampla Kharkhoda Road, Hassangarh, Rohtak, Haryana
19	Galvanising	Rukmani Electrical & Fabricators Pvt, Ltd.	Urla Industrial Area, Urla Sarora Road, Raipur- 493 221 (Chhattisgarh)
			Shankharidaha Baniyarah, Jalan Industrial Complex, Gate no.3, Lane no. 4, Domjur, Howrah , W.B .- 71141
20	Galvanising	DMP Projects Pvt.Ltd.	Dulagarh Industrial Park , PS-Sankrail , Howrah -711302
21	Galvanising	Vinfab Engineers India Private Limited	Gut no. 224/1 &2 Bhiwandi Wada State Highway, Village khupri, Dist. Thane, Maharashtra -421303
22	Galvanising	Saral Projects & Processors	B-1, Industrial Area, Site-II, Amawan Road Rae Bareli
23	Galvanising	Jamna Metal Company	D - 1513, DSIDC, Narela Industrial Area Delhi - 110040, India
24	Galvanising	Brahampuri Steels Limited	172 (F) Industrial Area, Jhotwara, Jaipur-302013

NOTES:

1. ANY CHANGE IN THE ABOVE LIST SHALL BE INFORMED AT THE TIME OF SPECIFIC PROJECT REQUIREMENT AND NO COMMERCIAL IMPLICATION SHALL BE ALLOWED ON THIS ACCOUNT.
2. IT SHALL BE THE RESPONSIBILITY OF THE VENDOR TO GET THE MATERIAL GALVANIZED FROM THE ABOVE LIST WITHOUT ANY COMMERCIAL IMPLICATION TO BHEL.

		STANDARD MANUFACTURING QUALITY PLAN					MQP. NO.: PESD/QA/EP/0003					
							REV NO: 01		DATE: 4-FEB-2017			
		PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032			PRODUCT: CABLE TRAY			PAGE 1 OF 3				
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT & ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
									P	W	V	

1.0 RAW MATERIALS & BOUGHT OUT ITEMS												
	RAW MATERIAL FOR CABLE TRAY	CHEMICAL ANALYSIS	MAJOR	CHEMICAL	Minimum one sample/lot/size /type	As per BHEL App drg/data sheet/spec	TC	√	2	-	1	
		MECHANICAL PROPERTIES	MAJOR	MECHANICAL	Minimum one sample/lot/size /type	As per BHEL App drg/data sheet/spec	-do-	√	2	-	1	
	ZINC	CHEMICAL ANALYSIS	MAJOR	CHEMICAL	5%	IS-209	-do-	√	2	-	1	
2.0 INPROCESS INSPECTION												
	IN PROCESS FABRICATION SHEARING,PUNCHING & BENDING	MECHANICAL	MAJOR	VISUAL	100%	As per BHEL App drg/data sheet/spec	Log Book	√	2	-	1	
	CABLE TRAY	VISUAL CHECK	MAJOR	VISUAL	100%	As per BHEL App drg/data sheet/spec	Log Book	√	2	-	1	
		DIMENSIONAL CHECK	MAJOR	MANUAL	100%	As per BHEL App drg/data sheet/spec	Log Book	√	2	-	1	
		WELDING PREPARATION *	MAJOR	VISUAL	100%	As per BHEL App drg/data sheet/spec	Log Book	√	2	-	1	* Indicate If applicable
	SURFACE PREPARATION	MECHANICAL	MAJOR	VISUAL	100%	As per BHEL App drg/data sheet/spec	Log Book	√	2	-	1	
	HOT DIP GALVANIZATION	CHEMICAL	MAJOR	MANUAL	100%	As per BHEL App drg/data sheet/spec	Log Book	√	2	-	1	
3.0 FINAL INSPECTION & TESTING												
	CABLE TRAY	DIMENSIONAL CHECK	CRITICAL	MECHANICAL	Minimum one sample/lot/size /type	As per BHEL App drg/data sheet/spec	Report	√	2	1		

LEGEND: P: PERFORM, W: WITNESS, V: TEST CERTIFICATE REVIEW. INDICATE 1 FOR BHEL / BHEL NOMINATED INSPECTION AGENCY & 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.

PREPARED BY

APPROVED BY

APPROVED BY

--NA--

BHEL QA SIGNATURE & STAMP

BHEL QA SIGNATURE & STAMP

CUSTOMER'S SIGNATURE & STAMP (IF APPLICABLE)

		STANDARD MANUFACTURING QUALITY PLAN					MQP. NO.: PESD/QA/EP/0003					
							PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032			PRODUCT:CABLE TRAY		REV NO: 01
		PAGE 2 OF 3										
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT & ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARK S
									P	W	V	

		VISUAL CHECK	CRITICAL	VISUAL	Minimum one sample/lot/size /type	As per BHEL App drg/data sheet/spec	Report	√	2	1		
		UNIFORMITY OF ZINC COATING	CRITICAL	CHEMICAL	Minimum one sample/lot/size /type	As per BHEL App drg/data sheet/spec	TC	√	2	1		
		MASS OF ZINC COATING	CRITICAL	MECHANICAL	Minimum one sample/lot/size /type	As per BHEL App drg/data sheet/spec	TC	√	2	1		
		ADHESION TEST	CRITICAL	MECHANICAL	Minimum one sample/lot/size /type	As per BHEL App drg/data sheet/spec	TC	√	2	1		
		LOAD TEST *	CRITICAL	MECHANICAL	Minimum one sample/lot/size /type	As per BHEL App drg/data sheet/spec	TC	√	2	1		* Indicate If applicable
4.0	PRESERVATION & PACKING											
	Cable tray accessories i.e. loose items like Coupler plates, Nuts, Bolts, and Washers shall be packed in wooden box.							√	2		1	

Notes:-

1. This Standard MQP should be read along with specification (Latest revision as per PO), approved drawings & approved datasheet (as applicable).
2. Drawing/datasheet shall prevail over quality plan for contradiction if any.
3. Any project/customer specific requirements which shall be notified have to be fulfilled by the vendor at the time of execution of order.

LEGEND: P: PERFORM, W: WITNESS, V: TEST CERTIFICATE REVIEW. INDICATE 1 FOR BHEL / BHEL NOMINATED INSPECTION AGENCY & 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT / CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.	PREPARED BY	APPROVED BY	APPROVED BY
	BHEL QA SIGNATURE & STAMP	BHEL QA SIGNATURE & STAMP	--NA-- CUSTOMER'S SIGNATURE & STAMP (IF APPLICABLE)

		STANDARD MANUFACTURING QUALITY PLAN					MQP. NO.: PESD/QA/EP/0003					
							REV NO: 01		DATE: 4-FEB-2017			
		PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032			PRODUCT: CABLE TRAY			PAGE 3 OF 3				
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT & ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARK S
									P	W	V	

Abbreviations:-

MTC	-	Material Test certificate	TC	-	Test Certificate	RT	-	Radiography Test
IR	-	Inspection Report	ITR	-	Internal Test Report	UT	-	Ultrasonic Test
NDE	-	Non Destructive Examination	LPT	-	Liquid Penetrant Test			
IBR	-	Indian Boiler Regulations	DFT	-	Dry Film Thickness			
COC	-	Certificate of Compliance						

LEGEND: P: PERFORM, W: WITNESS, V: TEST CERTIFICATE REVIEW. INDICATE 1 FOR BHEL / BHEL NOMINATED INSPECTION AGENCY & 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT / CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.	PREPARED BY	APPROVED BY	APPROVED BY
	BHEL QA SIGNATURE & STAMP	BHEL QA SIGNATURE & STAMP	--NA-- CUSTOMER'S SIGNATURE & STAMP (IF APPLICABLE)

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				Rev No. 04
				Page 1 of 3
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	Form No.	 HYDERABAD	PRODUCT STANDARD PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD	ANNEXURE
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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.		<u>GUIDELINES TO VENDORS FOR PREPARATION OF QUALITY ASSURANCE PLAN</u> - QAP shall be made in landscape mode on A4 size paper as per the format enclosed. Font size shall be minimum 10. - Each page of QAP shall contain the following information. - Vendor's name & address. - Customer: BHEL, Hyderabad. - Project. - BHEL Product Standard Number/revision number as referred in P.O. - BHEL Purchase Order Number & Date. - Product as per P.O. description. - QAP Number (unique and shall not repeat)/revision number/date. - Page number and number of pages - QAP shall contain four parts / stages as follows. - Raw materials and bought out items. - In process Control / Inspection. - Final assembly, Inspection & Testing. - Painting, preservation & packing. - Under 'Component', indicate name of the component (say casing, rotor, pressure gauge, etc). - Under 'Characteristics', indicate appropriately (say chemical analysis, mechanical properties, NDT (UT,DP etc.), hydrostatic test, calibration check etc.) - Under 'Class', indicate minor, major or critical depending on the importance of characteristic. - Under 'Type of check', indicate appropriately (say chemical, mechanical, UT, DP etc.) - Under 'Quantum of check', indicate appropriately (say 100%, 10%, sample, per melt, per heat, all pieces etc.) - Under 'Reference document' and 'Acceptance norms', appropriate National & International standards, BHEL standards, approved drawing references etc. should be indicated. It is not correct to mention as "Vendor's internal standards or Vendor's standard practice etc.". If vendors' internal standards are referred, same shall be in line with BHEL Spec. indicated in the P.O. These may require review & approval by our Engineering dept. - Under 'Format of record', indicate appropriately supplier's test certificate, calibration certificate, lab report, inspection report etc.		
	Ref. Doc	Please refer 'Agency' in QAP format. Under P: Perform, W: Witness, V: Verify Indicate against each characteristic 1: (BHEL CQS/Nominated inspection agency), OR 2: (Vendor / Sub vendor)		

Form No.	 HYDERABAD	PRODUCT STANDARD PROJECT ENGINEERING & SYSTEMS DIVISION HYDERABAD	ANNEXURE
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Ref. Doc		Note: Performing agency is normally vendor or his sub vendor (Legend 2). Where witness points are indicated in specification, P.O., Drawing etc., for such operations, under Witness (W) column use 1. Under 'Verify' column, use code1. 12. Under 'D' please put (☐ Tick) against each characteristic where vendor proposes to submit test certificate/report etc. OR as required as per BHEL Specification. 13. Vendor's signature & stamp should be available on each page of QAP. 14. Vendor should read the BHEL Product Standard thoroughly and QAP should be made only inline and relevant to the Specification & Approved Drawings. 15. The following operations/characteristics/check points may be included (AS APPROPRIATE) a) Visual check b) Dimensional check c) Mechanical and Chemical properties. d) Surface preparation before painting (by chemical cleaning, sand blasting, shot blasting etc. as the case may be.) e) Painting check for shade, Dry Film Thickness (DFT), Adhesion/ peel off test etc. f) Check for correctness for all components mounted as per General arrangement Drawing, Bill Of Materials (BOM), etc. for range, rating, make, color, size, location as per GA, quantity, label description including tag nos., annunciator facia, loose components, accessories, spares etc. g) Verification of test certificate for protection class for the enclosures. h) Mechanical functioning of switches. i) Continuity of earthing and provision of earth points. j) Colour coding of wiring, size, tightness & dressing of wiring. k) Review of test certificates of assembled items, raw materials, internal test reports etc. l) Witness of functional checks, which may include mechanical run & electrical run, H.V.test, IR measurement, Electrical and Mechanical tests etc. m) PQR, WPS, Welder Qualification Record, welding records (fit up, DP) etc. n) Material identification (for punch marks of serial numbers, Heat No, Melt No, Inspector's stamp etc.) o) Hydraulic Pressure Test, Pneumatic Pressure Test, Liquid Penetration Examination and other Non Destructive Tests. p) Tests on Galvanised items (Visual, Hammer Test, Knife Test, Thickness, Pierce Test (Copper sulphate test), Hydrogen evaluation test, Stripping test (for Mass of Zinc coating) q) All tests as per BHEL Product Standard & approved drawings including Type tests and Routine tests on individual items and on System as a whole. r) Packing and Preservation. 16. QAP Format enclosed. 17. Typical Manufacturing QAP is attached.	

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VENDOR'S NAME & ADDRESS:			MANUFACTURING QUALITY PLAN						QP. NO.:				
			CUSTOMER: BHEL, HYDERABAD – 32.			BHEL P.O.NO.:			REV NO:		DATE:		
			PROJECT:			P.O.DATE:			PAGE 1 OF 1				
PRODUCT:			BHEL SPEC:			REV:							
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
										P	W	V	
1.0	RAW MATERIALS & BOUGHT OUT ITEMS												
2.0	INPROCESS INSPECTION												
3.0	FINAL INSPECTION & TESTING												
4.0	PRESERVATION & PACKING												

VENDOR TO NOTE: THIS FORMAT IS IN MICROSOFT WORD. HEADER & FOOTER SHALL BE AVAILABLE IN EACH PAGE OF QP. QP SHALL BE IN LANDSCAPE & A4 SIZE ONLY. FONT SIZE SHALL BE MIN 10. VENDOR SHALL SIGN & STAMP IN EACH PAGE OF QP. LOI REF. & DATE ARE NOT ACCEPTABLE. P.O.NO. & DATE SHALL BE INDICATED. QP NO. SHOULD BE UNIQUE AND SHALL NOT REPEAT. ALL THE TESTS / CHECKS INDICATED IN THE BHEL SPEC. SHALL BE INDICATED IN THE QP.

LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL CQS (OR BHEL NOMINATED INSPECTION AGENCY) & 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.	PREPARED BY	APPROVED BY	APPROVED BY
	VENDOR'S SIGNATURE & STAMP	BHEL QA SIGNATURE & STAMP	CUSTOMER'S SIGNATURE & STAMP